

# **NHPC LIMITED**

(A GOVT. OF INDIA NAVRATNA ENTERPRISE)

CIN: L40101HR1975GOI032564



एक नवरत्न कंपनी

**Draft Bid Document**

**For**

**The work of “Providing and fixing SS 304 gates at Ganga Sadan and  
NHPC Bhawan entrance, NHPC Residential Complex, Sec-41,  
Faridabad”**

**(DOMESTIC COMPETITIVE BIDDINGS)**

**(THROUGH e-TENDERING)**

**(CONTRACTS CIVIL DIVISION)**

**November 2024**

**REGD. OFFICE: NHPC OFFICE COMPLEX, SECTOR-33, FARIDABAD – 121003**

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## **SECTION-I**

### **NOTICE INVITING E-TENDER**

## NHPC LIMITED

(AGOV.T.OF INDIA NAVRATNA ENTERPRISE)

Regd. Office: NHPC Office Complex, Sector-33, Faridabad-121003 (Haryana)

(OPEN TENDER ENQUIRY)

Domestic Competitive Bidding

(E-tendering-Web Notice)

**Tender Reference No.:** NH/CCW/CCIV/CO351/PR10024/190

**Dated:** 29-11-2024

1. Online “**Percentage Rate**” bids are invited through **Domestic Competitive Bidding in Single Stage -Two Part Bidding** Basis {i.e. Part-I (Cover-I): Technical- Bid and Part-II (Cover-II): Financial Bid} for and on behalf of NHPC Ltd. *(A Govt. of India Navratna Enterprise)* from eligible **Sole Bidders** for the work of “**Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad**”

A. Brief details of the tender:		
Sl. No.	Item	Description
i)	Mode of tendering	e-Procurement System  Cover-I: Online Techno-Commercial Bid  Cover-II: Price Bid
ii)	Tender ID No.	2024_NHPC_837423_1
iii)	Tender reference No.	NH/CCW/CCIV/CO351/PR10024/190
iv)	Cost of bid document	Rs. <b>500/-</b> (Rupees Five Hundred only) in the form of Crossed Demand Draft/ Banker's cheque in favour of “NHPC Limited” payable at Faridabad.
v)	Bid Security (EMD)	Rs. <b>11000/-</b> (Rupees Eleven Thousand only), in the form of BG / DD favouring “NHPC Ltd.” payable at Faridabad or Insurance Surety bond/ Notarized copy of the valid Certificate of Recognition

		issued by DIPP to start Ups as per ITB Clause 13.
vi)	Period of Bid Validity	120 days
vii)	Estimated Cost	Rs. 5,26,107/-
viii)	Completion Period	02 Month
ix)	Tender inviting Authority	General Manager (Civil Contracts-IV), NHPC Ltd., NHPC Office Complex, Jyoti Sadan, 2nd Floor, Sector-33, Faridabad - 121003, Haryana, India Tele Fax No :+91 (129) 2254709 Email: contcivil4-co@nhpc.nic.in
<b>B. Critical dates of tender:</b>		
x)	Publishing Date & Time	29.11.2024 (18.00 Hrs)
xi)	Document Download Start Date & Time	29.11.2024 (18.00 Hrs)
xii)	Deleted	
xiii)	Deleted	
xiv)	Bid Submission Start Date & Time	06.12.2024 (11.00 Hrs)
xv)	Online Bid Submission Closing Date & Time	27.12.2024 (17.00 Hrs)
xvii)	Offline submission closing (address, date & time)	Address: General Manager (Civil ContractsIV), NHPC Ltd., NHPC Office Complex, Jyoti Sadan (Old Building), 2nd Floor, Sector-33, Faridabad -121003 Haryana, India  Date & time:-30.12.2024 (15.00 Hrs).
xviii)	Online Bid Opening of Technical Bid (Cover-I)	Date & time:- 31.12.2024 (15.00 Hrs) Venue:- Room No. 220, Contracts Civil Division, Second Floor, Jyoti Sadan (Old Building), Corporate Office, NHPC Limited Sector-33 Faridabad Haryana-121003.,

xix)	Price bid Opening (Cover-II)	Venue, Date & time to be intimated later to the bidders whose Techno-commercial Bids will be found responsive
xx)	Deleted	

1.1 Complete Bid Document /Tender Document can be viewed and down loaded from Central Public Procurement (CPP) Portal <https://eprocure.gov.in/eprocure/app>. The site can also be viewed through e-procurement corner of NHPC website **www.nhpcindia.com** and CPP Portal. Any Bidder who wishes to quote for this Tender can download the Tender Document from aforesaid portal after online Bidder registration for e-tendering.

## 2. Eligible Bidders

2.1 This Invitation for Bid is open to:

- a) The bidders who are incorporated legal entity and are legally and financially autonomous and operate under commercial law of their respective jurisdiction.
- b) All bidders meeting the Qualification criteria as defined in clause 3.
- c) Bidder shall be Class-I Local Supplier under Public Procurement (Preference to Make in India), Order-2017 issued by the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry vide No. P-45021/2/2017-PP (BE-II) dated 16.09.2020 or as amended from time to time. Bidders shall submit undertaking/self-certificate regarding Local content in the format provided under Tender Form-11. Bidder shall also give details of the location(s) at which the local value addition is made.

Public Procurement (Preferences to Make in India) Policy (including its latest modifications/amendments) as may be prevailing on the date of Price Bid Opening shall be applicable against this tender. Bidders are requested to go through the Public Procurement (Preferences to Make in India) policy available on concerned ministry website.

- d) Bidder shall comply with the provisions of "Restrictions under Rule 144(xi) of the General financial Rules (GFRs) 2017" issued by Department of Expenditure, Ministry of Finance dated 23.07.2020 and subsequent amendments.

2.2 Bidders shall not be under declaration of ineligibility for banning / delisting / blacklisting / debarment from business on the ground mentioned in para 6 of Guidelines on Banning of Business dealings (Annexure-A) at the time of submitting

the bid and shall intimate immediately of any such banning / delisting / blacklisting / debarring after submission of bid till award of tender. Self-Declaration in this regard is to be submitted as per the enclosed proforma (Forms-6-, Section-III).

2.3 The Bidders whose contract(s) have been terminated due to unsatisfactory performance by employer in past, shall not be allowed to participate in the bidding process till completion of the ineligibility period. .

2.4 Deleted

### **3. Qualification of the Bidder**

3.1 All bidders shall include the following information and documents with their bids in, Qualification Information unless otherwise stated in the ITB:

- a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder. Additional information as sought in the Form-1 General Information, Section-III shall be provided;
- b) work experience to demonstrate meeting the criteria stipulated in clause 3.2 A (b ) shall be provided in Form -3 work experiences record, Section-III. The work experience shown shall be supported with certificate(s) from the Engineer-in-charge/Project head of the concerned work. In case of experience certificates produced by the contractors for having executed works for Private Organizations, TDS Certificates / Form 26AS / Annual Information Statement (AIS) shall also be produced along with experience certificate.
- c) Information on financial criteria stipulated in clause 3.2A (a) shall be furnished in Form-4, Annual turnover, Section-III. Copy of affidavit/Certificate of CA mentioning Annual Turnover of last 3 (three) years. Printed Annual reports or financial statements of the Bidder, such as balance sheet, profit and loss statements and auditor's reports as the case may be for the past three years shall be submitted to ascertain bidder's meeting the financial criteria. The CA Certificate should have the Unique Document Identification Number (UDIN) as per Gazette Notification No. 1-CA(7)/192/2019 dated 02.08.2019.
- d) Deleted.

3.2 A To qualify for award of the Contract, each bidder should have:

- a) Achieved in any one year in last three year (ending FY 2023-24) a minimum Annual turnover of at least equivalent to the estimated cost (Rs. 5.26 Lakh) of works for which bid has been invited.

In support of above, copy of Printed Annual reports or financial statements of the Bidder, such as balance sheet, profit and loss statements and auditor's reports as the case may be for the past three years (ending FY 2023-24) shall be submitted to ascertain bidder's meeting the financial criteria as stipulated above. In case of non-availability of audited accounts, certificate of CA with UDIN mentioning financial turnover can also be submitted.

- b) Satisfactorily completed, in last seven years ending on last day of month previous to one in which applications are invited, at least
  - a) one similar completed work costing not less than the amount equal to Rs 4.21 Lakh or
  - b) two similar completed works each costing not less than the amount equal to Rs 2.63 Lakh or
  - c) three similar completed works each costing not less than the amount equal to Rs 2.10 Lakh.

For arriving at the cost of similar work, the value of work executed shall be brought to current costing level by enhancing the actual value of work at simple rate of seven percent per annum, calculated from the date of completion to the date of bid opening.

Note: (i) Similar work means "Civil Works"

- ii) In support of above criteria, the bidder shall submit copy of Supply Order / Work Order / Letter of Award with detailed BOQs and copy of successful completion certificate(s)/ successful installation certificate signed/issued by purchaser/owner/employer to establish the successful completion of the awarded works.

**3.2 B Each bidder must also submit with their Bid:**

- i) Copies of PAN, GST Registration No., EPF Registration No. . issued by RPFC and ESIC Registration No. (as applicable).
- ii) A declaration that the information furnished with the bid documents is correct in all respects in form-5, form of declaration, Section-III.
- iii) Such other certificates if any as defined in the ITB.

**3.2 C** To qualify for Contract for which bids are invited in the Notice Inviting Tender, the bidder must demonstrate having work experience, financial capability and resources sufficient to meet the aggregate of the qualifying criteria. Failure to produce the certificates and documents in clauses 3.1 and 3.2(A) & (B) shall make the bid non-responsive.

**3.2 D** JVs or any other arrangement other than sole bidder is not allowed. Experience and resources of proposed sub-contractor, if any shall not be taken into account in determining the bidder's compliance with the qualifying criteria. However,

experience of bidder as sub- contractor approved by Project developer shall be considered.

- 3.2 E All Startups (whether MSEs or otherwise) registered for similar nature of work falling within the definition as per Gazette notification- GSR 127(E) dated 19.02.2019 or as amended from time to time are exempted from meeting the qualification criteria in respect of Prior Experience-Prior Turnover as per para 3.2 A subject to their meeting the quality and technical specification for which necessary documents shall be submitted by such bidders. Only those start-ups will be given benefit, which has valid certificate for the work/ services covered under this tender.

**3.2 F Insolvency**

The Bidder, against whom an application for initiating corporate insolvency resolution process has been admitted by the Adjudicating Authority under the Insolvency and Bankruptcy code 2016, or as amended from time to time, shall not be eligible for bidding. The same shall also be applicable to the bidder company who has taken unconditional technical and/or financial support from their Parent/ Holding Company, against whom an application for initiating corporate insolvency resolution process has been admitted by the Adjudicating Authority under the Insolvency and Bankruptcy Code 2016, or as amended from time to time (IBC 2016 hereafter).

In case, bidder in respect of whom any application for initiating corporate insolvency resolution process was not admitted at the time of submission of bid but subsequently during the period of evaluation of bids or any time before the work is awarded, any such application is admitted by the Adjudicating Authority under the IBC 2016, the bidder shall be considered as ineligible and his bid shall be rejected.

An undertaking that “no insolvency proceedings ~~are~~ admitted by the Adjudicating Authority against bidder under the IBC 2016” shall be submitted on letter head duly signed by the authorized representative of bidder as per enclosed Proforma (Form-10, Section-III).

Further, the bidder after submitting the bid till the time of award of work, shall inform NHPC regarding any admission of application for corporate insolvency resolution process by the Adjudicating Authority under the IBC 2016 against bidder and any suppression of such fact shall render the bidder liable for rejection of his bid and banning of business dealing as per terms and conditions of the Bid Document.

**3.2G Provisions related to Make in India:**

a) For procurement of Goods/Services/Works, irrespective of purchase value where there is sufficient local capacity and local competition, only Class-I local supplier shall be eligible to bid.

The above criteria shall be subject to compliance of following:

- i) The bidder shall have to be an entity registered in India in accordance with law.
- ii) The bids shall be in Indian National Rupees (INR) only in respect of local content.
- iii) The bidder shall follow Indian laws, regulations and standards

### **3.2 H Nature of Bidders**

Bidder should be a single entity for participating in the bid.

### **3.3 Disqualification:**

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

- (i). made misleading or false representations in the forms, statements, affidavits, declarations and attachments submitted in proof of the qualification requirements; and/or,
- (ii). participated in the previous bidding for the same work & found L-1 and had quoted abnormally high or low bid prices and could not furnish rational justification for it to the Employer,
- (iii). The Bidders whose contract(s) have been terminated due to unsatisfactory performance by employer in past, shall not be allowed to participate in the bidding process till completion of the ineligibility period. In such case the bid shall be considered as non-responsive.

### **4.0 Time for Completion**

The successful bidder shall complete the entire work within the time specified at SI no. -1, to be reckoned from the date of issue of Letter of Acceptance issued by the Employer.

### **5.0 Tenders must be accompanied by the earnest money of the amount specified for the work in the table.**

### **6.0 Deleted**

### **7.0 Bid submission**

- i) Online Bid Submission – Technical Bid (Cover-I) (Refer Section- II i.e. ITB) and Price Bid (Cover-II) electronic format) complete in all respect must be uploaded at the aforesaid portal before the specified date & time as per SI. No. 1.

- ii) Offline Bid Submission (Refer Section- II i.e ITB) complete in all respect must be delivered in sealed envelopes to the address, up to the specified date & time as per Sl. No. 1

In the event of the specified date or amendment if any for the submission of bids being declared a holiday for the Employer, the hard copy of the documents will be received up to the specified time on the next working day. Similarly, in the event of the specified date or amendment if any for the opening of bids being declared a holiday for the Employer, the opening shall be carried out at the specified time on the next working day. However, the date and time for online submission of the Bids shall continue to be the date and time specified or amendment if any.

- 8.0** The currency for the Bid shall be Indian Rupee only.
- 9.0** Bids shall be valid for a period as mentioned in Sl no. 1 after the deadline for Bid submission. If any Bidder withdraws his Bid before the said period or makes any modification in his Bid, the Earnest Money deposit of the Bidder shall be forfeited. Prior to the expiry of bid validity period, Employer may request Bidders to extend the Bid validity period. The request and the response shall be made in writing. An extension of the bid validity period will not entitle a Bidder to modify its Bid. In case Bidder fails to extend the bid validity upon employer's request, the corresponding Bid shall be rejected as being non-responsive.
- 10.0** The Techno-commercial Bid shall be opened online at venue date & time as per Sl. No.-1. the time and date of opening of Financial Bid of bidders qualified the technical bid shall be communicated through portal at later date after evaluations of technical bids. The Employer/Tender inviting Authority at his discretion may open Technical and Financial Bid simultaneously and evaluate the Bid completely.
- 11.0** The Employer may impose certain restrictions on the foreign companies participating in any form and their employees in view of the National Security, in the Project situated in the sensitive region and border areas. The Employer shall obtain clearance of Govt. of India regarding security implications prior to qualification of such company. Further, bidders from countries which share land border with India shall comply with Department of Expenditure, Ministry of Finance, GoI, OM No. F.No. 6/18/2019/PPD dt. 23.07.2020 & 24.07.2020.
- A bidder is permitted to procure raw material, components, sub-assemblies, etc. from the vendors of countries sharing a land border with India without getting registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT, as it is not regarded as "sub-contracting".

However, in case a bidder proposes to supply finished goods procured directly/indirectly from the vendors of the countries sharing land border with India, such vendors will be required to get registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT.

Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC) / Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorised agents, shall be exempted from the requirement of registration as mandated under Rule 144(xi) of GFRs 2017.

- 12.0** Any corrigendum, subsequent amendments and / or extension of date, if any, for submission of Bids shall be posted on the portal <https://eprocure.gov.in/eprocure/app>. Bidder(s) are advised to visit the portal regularly before the deadline for submission of Bids.
- 13.0** The employer reserves the right to accept or reject any Bid and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidder(s). However, the Bidder(s) who wish to seek reasons for such decision of cancellation/rejection shall be informed of the same by Employer unless its disclosure reasonably could be expected to affect the sovereignty and integrity of India, the security, strategic, scientific or economic interest of the state or lead to incitement of an offence.
- 14.0** In case of any difference between wordings of English and Hindi, version of 'Notice Inviting Tender', English version shall prevail.

**(For & on behalf of NHPC Ltd.)**

General Manager (Civil Contracts-IV),  
NHPC Ltd., NHPC Office Complex, 2nd Floor, Sector-33,  
Faridabad -121003, Haryana, India  
Tele Fax No :+91 (129) 2588709  
Email: contcivil4-co@nhpc.nic.in

## **SECTION II**

**INSTRUCTIONS TO BIDDERS (ITB), BIDDING DATA**

**AND**

**INFORMATION FOR BIDDERS (IFB)**

## Section II: Instructions to Bidders and Bidding Data

### Instructions to Bidders

<b>Clause</b>	<b>A. General</b>	<b>16</b>	Deadline for Submission of Bids
<b>1</b>	Scope of Bid	<b>17</b>	Late Bids
<b>2</b>	Eligible Bidders	<b>18</b>	Modification and withdrawal of Bids
<b>3</b>	Qualification of the Bidder		<b>E. Bid Opening and Evaluation</b>
<b>4</b>	Cost of Bidding	<b>19</b>	Bid Opening
<b>5</b>	Site Visit	<b>20</b>	Process to be Confidential
	<b>B. Bidding Documents and Evaluation</b>	<b>21</b>	Examination of bids and Determination of Responsiveness
<b>6</b>	Content of Bidding Documents	<b>22</b>	Evaluation and Comparison of Bids
<b>7</b>	Clarification of Bidding Documents and Pre Bid Meeting	<b>23</b>	Preference for Domestic Bidders
<b>8</b>	Amendment to Bidding Documents		<b>F. Award of Contract</b>
	<b>C. Preparation of Bids</b>	<b>24</b>	Award Criteria
<b>9</b>	Language of Bid	<b>25</b>	Employer's Right to Accept any Bid And to Reject any or all Bids
<b>10</b>	Bid Prices	<b>26</b>	Notification of Award and Signing of Agreement
<b>11</b>	Currencies of Bid and Payment	<b>27</b>	Performance Security Deposit
<b>12</b>	Bid Validity	<b>28</b>	Advances
<b>13</b>	Earnest Money	<b>29</b>	Corrupt or Fraudulent Practices
<b>14</b>	Alternative Proposals by Bidders	<b>30</b>	General
	<b>D. Submission of Bids</b>		
<b>15</b>	Submission of Bids		

## **Section-II**

### **Instructions to Bidders (ITB)**

#### **A. General**

##### **1. Scope of Bid**

- 1.1** The NHPC Ltd. Hereinafter referred to as Employer invites bids for the construction of Works, as described in these documents and referred to as “the Works”. The name and identification number of the works is provided in the NIT/Bidding Data
- 1.2** The successful Bidder will be required to complete the Works in the Time allowed for Completion specified in the Schedule D in accordance with Conditions of Contract.
- 1.3** Throughout these documents, the terms “bid” and “tender” and their derivatives (bidder/tenderer, bid/tender, bidding/tendering, etc.) are synonymous.

##### **2. Eligible Bidders**

**2.1** This Invitation for Bid is open to:

- a) The bidders who are incorporated legal entity may only participate in the bidding process if they are legally and financially autonomous and operate under commercial law of their respective jurisdiction.
- b) All bidders meeting the Qualification criteria as defined in clause 3.
- c) Bidder shall be Class-I Local Supplier under Public Procurement (Preference to Make in India), Order-2017 issued by the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry vide No. P-45021/2/2017-PP (BE-II) dated 16.09.2020 or as amended from time to time. Bidders shall submit self-certification that the item offered meets the local content requirement for 'Class-I local supplier in the format provided under Tender Form-11.

- 2.2** Bidders shall not be under declaration of ineligibility for banning / delisting / blacklisting / debarment from business on the grounds mentioned in para 6 of Guidelines on Banning of Business dealings (Annexure-A) to Integrity Pact at the time of submitting the bid and shall intimate immediately of any such banning / delisting / blacklisting / debarring after submission of bid till award of tender. Self-Declaration in this regard is to be submitted as per the enclosed proforma (Form-6-, Section-III).

- 2.3** the Bidders whose contract(s) have been terminated due to unsatisfactory performance by employer in the past, shall not be allowed to participate in the bidding process till completion of the ineligibility period .

**2.4** Deleted

### **3. Qualification of the Bidder**

**3.1** All bidders shall include the following information and documents with their bids in, Qualification Information unless otherwise stated in the ITB:

- (a) copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder. Additional information as sought in the Form-1 General Information, Section-III shall be provided;
- (b) work experience to demonstrate meeting the criteria stipulated in NIT shall be provided in Form -3 work experiences record, Section-III. Any work experience (not specified in Form-3) claimed afterwards during clarification shall not be considered for evaluation. The work experience shown shall be supported with certificate(s) from the Engineer-in-charge/Project head of the concerned work:
- (c) Information on financial criteria stipulated in NIT shall be furnished in Form -4, Annual turnover, Section-III. Copy of affidavit/Certificate of CA mentioning Financial Turnover of last 3 (three) years. Printed Annual reports or financial statements of the Bidder, such as balance sheet, profit and loss statements and auditor's reports as the case may be for the past three years shall be submitted to ascertain bidder's meeting the financial criteria.

**3.2 For Qualification criteria refer Clause 3.2A to 3.2 H of NIT.**

### **3.3 Disqualification:**

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

- (i). made misleading or false representations in the forms, statements, affidavits, declarations and attachments submitted in proof of the qualification requirements; and/or,
- (ii). participated in the previous bidding for the same work & found L-1 and had quoted abnormally high or low bid prices and could not furnish rational justification for it to the Employer,
- (iii). The Bidders whose contract(s) have been terminated due to unsatisfactory performance by employer in past, shall not be allowed to participate in the bidding process till completion of the ineligibility period. In such case the bid shall be considered as non-responsive.

#### **4. Cost of Bidding**

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

#### **5. Site Visit**

5.1 The tenderers, in their own interest, should inspect and examine the site and its surroundings and satisfy themselves, before submitting their tender, in respect of the site conditions including but not restricted to the following which may influence or affect the work or cost thereof under the Contract:

- a) Site conditions including access to the site, existing and required roads and other means of transport/communication for use by them in connection with the works;
- b) Requirement and availability of land and other facilities for their enabling works, colonies, stores and workshops etc.;
- c) Ground conditions including those bearing upon transportation, disposal, handling and storage of materials required for the work or obtained therefrom;
- d) Source and extent of availability of suitable materials including water, etc. and labour (skilled and un-skilled), required for work and Laws and Regulations governing their use and employment;
- e) Geological, meteorological, topographical and other general features of the site and its surroundings as are pertaining to and needed for the performance of the work;
- f) The limit and extent of surface and sub-surface water to be encountered during the performance of the work and the requirement of drainage and pumping;
- g) The type of equipment and facilities needed, preliminary to, for and in the performance of the work; and
- h) All other information pertaining to and needed for the work including information as to the risks, contingencies and other circumstances which may influence or affect the work or the cost thereof under this contract.

5.2 The tenderers should note that information, if any, in regard to the site and local conditions, in these tender documents, except for the material agreed to be supplied by the Employer, has been given merely to assist the tenderers and is not warranted to be complete.

5.3 The tenderers should note and bear in mind that the Employer shall bear no responsibility for the lack of acquaintance of the site and other conditions or any information relating thereto, on their part. The consequences of the lack of any knowledge, as aforesaid, on the part of the tenderers shall be at their risk and cost

and no charges or claims whatsoever consequent upon the lack of any information, knowledge or understanding shall be entertained or payable by the Employer.

- 5.4 For Site Visit, the tenderers should Contact Engineer, at following address:  
GM (Civil)  
EMS Division  
Contract No. 0129-2272801

## ***B. Bidding Documents and Evaluation***

### **6. Content of Bidding Documents**

- 6.1 The set of bidding documents comprises the documents listed below and addenda issued in accordance with Clause 8 of ITB.

Section I	Notice Inviting E-Tender
Section II	Instructions to Bidders(ITB), Bidding Data and Information for Bidders(IFB)
Section III	Tender Form, Form of declaration and Qualification Information
Section IV	General Conditions of Contract (GCC) and Schedules
Section V	Forms
Section VI	Special Conditions of Contract(SCC)
Section VII	Schedule of Quantities and Prices
Section VIII	Technical Specifications (TS) and Safety Manual
Section IX	Drawings

- 6.2 The bidder is expected to examine carefully all instructions, Forms, Schedules of Quantities and Price, qualification information and other schedules, General and Special conditions of contract, specifications, and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 21 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

### **7. Clarification of Bidding Documents**

- 7.1 A prospective Bidder requiring any clarification of the bidding documents may notify to Tender Inviting Authority in writing or by e-mail at the address indicated in the Bidding Data. The Employer will respond to such requests for clarification which are received upto 10 days from the date of issue of NIT. Any clarification requiring an amendment to the Bidding Documents shall be issued as Addenda as per the Clause

8. Employer's response (including an explanation of the inquiry, but without identifying its source) will be uploaded on portal <https://eprocure.gov.in/eprocure/app> at least 10 days prior to the deadline for submission of bids, where the bidder can see clarification/reply to query/ amendment to the Bidding Documents, if any. The Employer shall not be obliged to respond to any request for clarification received later than the above said period. Further, the mere request for clarification from the bidder(s) shall not be a ground for seeking extension in the deadline for submission of bids.

7.2.1 Deleted

7.2.2 Deleted

7.2.3 Any modifications in the Tender documents listed in Clause 6.1 of ITB, which may become necessary shall be made by the Employer exclusively through the issue of an Addendum pursuant to Clause 8 of ITB.

7.2.4 Deleted

## **8. Amendment to Bidding Documents**

- 8.1 Before the deadline for submission of bids, the Employer may for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, modify the bidding documents by issuing addenda.
- 8.2 In case the Schedule of Quantities and Price (Schedule-A) is revised through corrigendum/addendum, in such a case submission of revised financial bid will become mandatory, and the financial bid submitted earlier (i.e. before corrigendum) will become invalid.
- 8.3 Any addendum/corrigenda issued prior to submission of bids would be put up on the CPP portal <https://eprocure.gov.in/eprocure/app> as well as NHPC website [www.nhpcindia.com](http://www.nhpcindia.com). Any addenda/corrigenda/clarifications thus issued shall be part of the bidding documents. The prospective bidders have to check aforesaid portal for any amendment/corrigenda/clarifications periodically and before submission of their bids. All prospective bidders are presumed to have examined all amendments/corrigenda/clarifications published on the website and have submitted their bids accordingly.
- 8.4 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend, as necessary, the deadline for submission of bids, in accordance with Clause 16 of ITB.

## ***C. Preparation of Bids***

### **9. Language of Bid**

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

## **10. Bid Prices**

10.1 The Contract shall be for the whole Works, as described in Clause 1.1 of ITB, based on the Schedule of Quantities and Prices submitted by the Bidder.

10.2 The Bidder shall adopt the Percentage Rate Method for Price Bids as specified in Schedule D.

**Percentage Rate Method** requires the bidder to quote a percentage above / below / at par of the rates specified in the Schedule of Quantities and Prices prepared on the basis of Project Schedule of Rates.

10.3 All duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, as applicable 28 days prior to deadline for submission of Bid, shall be included in the rates, prices, and total Bid price submitted by the Bidder. All applicable taxes / duties including GST as applicable and assessed 28 days prior to bid submission date on the Employer shall also be included in the final bid prices, which shall be deducted from the Contractor and deposited to the concerned authority by the Employer. Employer will not entertain any claim whatsoever on this account.

All the bidders should ensure that they are GST compliant and their quoted tax structure /rates are as per GST Law. As per the GST Act the bid must show the GST Tax Rates and GST Amount explicitly. The bidder has to declare the applicable/considered GST Tax structure in 'Letter of Tender Form' (Form-2)

GST has been implemented by the Government w.e.f. 01.07.2017. The Contractor, except for the supplies for the categories mentioned at Section 9(3) of GST Act, shall submit GSTIN and shall quote his prices in accordance with GST provisions after considering the benefit of Input Tax Credit etc.

10.4 Deleted

## **11. Currencies of Bid**

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

## **12. Bid Validity**

12.1 Bids shall remain valid for a period as mention in NIT/Bidding data, after the deadline date for online bid submission specified in Clause 16 of ITB or amendment thereof.

12.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request the bidders to extend the period of validity for a specified additional period. The request and the bidders' response shall be made in writing or by e-mail. A

bidder may refuse the request without forfeiting his Earnest Money. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his earnest money for a period of the extension, and in compliance with Clause 14 of ITB in all respects.

### **13. Earnest Money Deposit (EMD)**

13.1 The Bidder shall furnish, as part of the Bid, Earnest Money, for the amount specified in the NIT/Bidding data either in the form of Demand draft in favour of 'NHPC Ltd' payable at place mentioned in NIT/Bidding data or irrevocable Bank Guarantee valid for a period of 90 days beyond the validity period of the bid issued by any Indian Nationalised Bank/Scheduled Commercial Bank in the prescribed format (Forms of Bank Guarantees) or irrevocable Insurance Surety Bond valid for a period of 90 days beyond the validity period of the bid issued by any Indian Insurance Company registered under Insurance Act 1938 or as amended from time to time and approved by the Insurance Regulatory Development Authority of India (IRDAI) in the prescribed format (Form of Insurance Surety Bond). Earnest Money if submitted by the Bidder in the form of Bank Guarantee / Insurance Surety Bond, the original Bank Guarantee / Insurance Surety Bond shall be submitted along with the bid. However, the issuing Bank / Insurance Company shall submit an unstamped duplicate copy of Bank Guarantees / Insurance Surety Bond directly by registered post (A.D.) to the Employer (authority inviting tenders) with a forwarding letter. However, in case Earnest Money has been submitted by the bidder in the form of Demand draft, the information relating to particulars of the bidders bank shall be submitted by the bidder along with the bid in the ECS Form at Section-V. The Earnest Money of unsuccessful bidders shall be remitted by the Employer in the above account through ECS mode, the Earnest Money submitted in the shape of Bank Guarantee / Insurance Surety Bond shall be returned in original by speed post.

13.2 Any bid not accompanied by an acceptable Earnest Money shall be rejected by the Employer as non- responsive.

13.3 The Earnest Money of bidders who are not qualified for opening of price bid shall be returned within 15 days after such notification. The Earnest Money of unsuccessful bidders will be returned within 15 days of opening of price bids.

13.4 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security Deposit.

13.5 The Earnest Money may be forfeited:

- a) if the Bidder withdraw or modify/revise the bid in the interval between the Bid submission deadline and the expiration of the Bid validity period ; or
- b) if the Bidder adopts corrupt or fraudulent or collusive or coercive practice(s) or defaults: or

c) in the case of a successful Bidder, if the Bidder fails within the specified time limit to

i. sign the Agreement; and/or

ii. Furnish the required Performance Security Deposit.

13.6 Interest or any other charges, whatsoever, will not be payable by the Employer on the Earnest Money Deposit.

13.7 Bidder shall communicate the following bank details of NHPC Limited, Faridabad to the issuing Bank for online confirmation of Bank Guarantee to be submitted in terms of this clause:

Name of the beneficiary:- NHPC Limited

Account No. :-10813608692

IFSC Code:- SBIN0017313

Branch of the Bank:-CAG-II New Delhi (17313)

Address of the Bank: State Bank of the India, 5th Floor, Redfort Capital, Parsvnath Towers, Bhai Veer Singh Marg, Gole Market, New Delhi-110001

Bidder is required to submit the SFMS receipt issued by the bank along with its bid for BG Confirmation.

13-8 Start-Ups as recognised by Department of Industrial Policy & Promotion (DIPP) are exempted from furnishing the Bid Security / EMD. They should furnish with the Bid a Notarized copy of the valid Certificate of Recognition issued by DIPP. No other bidders are exempted from furnishing Bid Security / EMD except as mentioned elsewhere in the document. However, tender fee is not exempted for start-Ups.

#### **14. Alternative Proposals by Bidders**

Bidder(s) shall submit offers that comply with the requirements of the bidding documents, including the Schedule of Quantities and Price, and the basic technical design as indicated in the drawings and specifications. Further, failure to furnish all information required by the Bid Document or submission of incomplete offers, conditional Bid and proposals containing deviations from the Bid Document shall be rejected as non-responsive.

#### ***D. Submission of Bids***

#### **15. Submission of Bids**

The Bid shall be prepared and submitted in two parts as stated hereunder. Submission of the bids by any other means shall not be accepted by the Employer in any circumstances. In case of Pre-bid meeting to be held as per clause 7.0 of ITB, the start date of submission of bids and the deadline for submission of bids is indicated in Bidding Data/NIT.

#### **15.1 Online Submission:**

**15.1.1 Cover –I:** This shall be named “Technical Bid”. No bid price related information shall be mentioned in the Technical Bid. Techno-commercial Bid shall comprise;

- i). Dully filed Letter of Tender (Form- 2) (without indicating the quoted price)
- ii). Scanned copy of DD towards cost of Tender fee.
- iii). Scanned copy of DD/Bank Guarantee / Insurance Surety Bond/ Notarized copy of the valid Certificate of Recognition issued by DIPP to start Ups as per ITB Clause 13 towards Earnest Money Deposit (EMD) as per ITB Clause 13.
- iv). Duly filled General Information (Form-1),and Scanned copies of original documents defining the constitution or legal status, Memorandum of Understanding/ Articles of Association, place of registration, and principal place of business; notarised power of attorney of the signatory of the Bid to commit the Bidder with authority of the executant to execute the same;
- v). Duly filled Form of Declaration (Form-5)
- vi). Duly filled Declaration of Ineligibility (Form- 6)
- vii). Scanned copy of PAN No.
- viii). Scanned copy of GST Registration No.
- ix). Scanned copy of EPF Registration No. & ESIC Registration No..... (as applicable) ECS Form (Section-V).
- x). Detail(s) of Work Experience (Duly filled in Form -3) supported with scanned copies of documentary evidence.
- xi). Scanned copies of Annual Turnover in (Duly filled in Form–4) (Copy of affidavit/Certificate of CA mentioning Annual Turnover of last 3 (three) years, Printed Annual reports or financial statements of the Bidder, such as balance sheet, profit and loss statements and auditor's reports as the case may be for the past three years.)
- xii). Deleted .
- xiii). Deleted
- xiv). Form-11, Certificate of Local Content in accordance to Public Procurement (Preference to Make in India) Order 2017.
- xv). Form-12, Declaration on Compliance under Rule 144(xi) of GFR-2017.
- xvi). Such other certificates/documents as defined in the ITB.

**15.1.2Cover-II:** It shall be named “Financial Bid or Price Bid” and shall comprise of Schedule of Quantities and Prices (Schedule A).

Financial Bid shall be submitted in Electronic Form on the portal by the date & time as specified in NIT. Submission of the “Financial Bid” by any other means shall not be accepted by the Employer in any circumstances. In case, if any cell is left blank and no rate is quoted against any of the item(s) by the bidder, rate of such item(s) shall be treated as "0" (Zero) and considered included in the cost of the Bid and no separate claim whatsoever will be entertained on this account.

15.1.3 Submission of revised financial bid will be mandatory, in case the same is desired by Employer through corrigendum/addenda. In such a case the financial bid submitted earlier will become invalid.

## **15.2 Offline Submission:**

Bidder shall submit the hard copy(ies) of documents as mentioned at sub para 15.2.1 in (one) sealed envelope, which must be either delivered by hand or by registered mail, and submitted by the date and time as specified in NIT/Bidding data. The envelope received late or after the prescribed due date and time will not be entertained. NHPC will not be responsible for any postal delay.

15.2.1 The sealed Envelope containing hard copy of documents shall be marked as “Hard copy (ies) of documents” for Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad :

- i). Cost of Tender Documents (in original) of Rs. 500/- (Rupees Five Hundred only) (as specified in NIT/Bidding Data ).
- ii). Demand draft/BG / Insurance Surety Bond (in original)/ towards Earnest Money Deposit of Rs.11000/- (Rupees Eleven Thousand only) / Notarized copy of the valid Certificate of Recognition issued by DIPP to start Ups ( as specified in Bidding Data/NIT).
- iii). Power of Attorney along with a copy of the Board resolution. In case of a General Power of Attorney, a true copy of the POA shall be duly notarized by Notary and in case of a specific Power of Attorney, the original POA. If a proprietary firm is bidding and proprietor of the firm is signing the bid, notarized copy of ownership of firm shall be submitted.
- iv). Such other certificates/documents as defined in the ITB.

**15.3** The bid submitted shall become invalid If any discrepancy is noticed between the documents as uploaded at the time of submission of bid (clause 15.1.1 ) and hard copies as submitted physically to the Tender Inviting Authority (clause 15.2.1 ).

## **16. Deadline for Submission of Bids**

16.1 Complete Bids must be uploaded at the portal, and hard copy(ies) of the document as mentioned in Clause 15.2 of ITB must be submitted at the address specified, by the date and time as stipulated in the Bidding Data/NIT.

In the event of the specified date for the submission of bids being declared a holiday for the NHPC Ltd., the hard copy(ies) of the documents will be received up to the specified time on the next working day. However, the date and time for online submission of the Bids shall continue to be the date and time specified in the Bidding Data/NIT or any amendment for the same.

16.2 The Employer may, in the exceptional circumstances and at its discretion, extend the deadline for submission of bids by issuing an amendment in accordance with Clause 8 of ITB, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

16.3 E-procurement portal permits only one person having Digital Signature Certificate (DSC) and registration etc. at the portal. It will be deemed that the legally authorized signatories of the Bidder having DSC has carried out bidding process through portal.

16.4 Any alteration/ modification in the Bid or additional information supplied subsequently to the Bid after period of bid submission, unless the same has been expressly sought for by the Employer, shall be disregarded.

## **17. Late Bids**

Online submission of the bid will not be permitted on the portal after expiry of submission time and the bidder shall not be permitted to submit the same by any other mode. Similarly hard copies of the Off line documents, if received by the Employer after the deadline for submission of Bids prescribed in Bidding Data/NIT, then it will be considered as 'Late Bid' notwithstanding the fact that the bidder has uploaded the bid online within the stipulated deadline. In such a case, the uploaded online bid on the portal shall be considered as non-responsive and shall not be processed further.

## **18.0 Modification and Withdrawal of Bid**

18.1 After submission of the bid the contractor can re-submit revised bid any number of times but before stipulated deadline for submission of bid.

18.2 In case Employer desired through amendment/corrigendum to submit revised financial bid then it shall be mandatory to submit revised financial bid. In such case the bid submitted before amendment/corrigendum shall become invalid.

18.3 The server time (which is displayed on the bidders' dashboard) will be considered as the standard time for referencing the deadlines for submission of the bids by the bidders, opening of bids etc. The bidders should follow this time during bid submission.

- 18.4 No Bid shall be withdrawn or modified/revised after Bid submission deadline. Withdrawal or modification of a Bid after Bid Submission deadline will result in the Bidder's forfeiture of its Bid security and further their Bid shall be considered non-responsive.

### ***E. Bid Opening and Evaluation***

#### **19. Bid Opening**

- 19.1 The Employer/ Authority inviting Tender will open the bids received (except those received late) in the presence of the bidders / bidder's representatives who choose to attend at the time, date and place specified in the Bidding Data/NIT. The Bidders/ Bidder's representatives who are present shall sign a register evidencing their attendance. Bidder(s) can also view Bid opening online on the CPP portal <https://eprocure.gov.in/eprocure/app> at their end.

In the event of the specified date for the opening of bids being declared a holiday for the Employer, the Bids will be opened at the appointed time and location on the next working day.

- 19.2 Online Cover-I i. e. Technical Bids shall be opened first.
- 19.3 Cover-I i. e. Technical Bids shall be evaluated for establishing eligibility of the bidder as per clause 2 & 3 as well as techno-commercially responsiveness as per Clause 21 of ITB, and a list will be drawn up of the responsive bids whose financial bids are eligible for consideration.
- 19.4 The Cover-II i.e. Financial Bid of only of those Bidder(s), who are found to be meeting the eligibility criteria as well as techno-commercially responsive for the subject Works shall be opened thereafter. The date of opening of the Financial Bid shall be notified separately to all the eligible & techno-commercial responsive Bidder. The Financial Bid shall be opened online in presence of Bidder's representatives who wish to be present at the notified time and place. Bidder(s) can also view Bid opening online on the CPP portal <https://eprocure.gov.in/eprocure/app> at their end.
- 19.5 The Financial Bids of Bidder(s), who are not considered eligible and techno commercial responsive, shall not be opened and will be Archived' unopened. The decision of the Employer will be final and binding in this regard.
- 19.6 The Employer/Tender inviting Authority at his discretion may open Technical and Financial Bid simultaneously and evaluate the Bid completely.

#### **20. Process to be Confidential**

Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to

bidder(s) or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Employer's processing of bids or award decisions may result in the rejection of his Bid

## **21. Examination of Bids and Determination of Responsiveness**

**21.1** During the detailed evaluation of "Technical Bids", the Employer will determine whether each Bid:

- (a) meets the eligibility criteria defined in Clauses 2 and 3;
- (b) has been properly signed;
- (c) is accompanied by the required securities; and
- (d) is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced Schedule of Quantities and Prices, Technical Specifications and Drawings.

**21.2** A substantially responsive "Bid" is one which conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one:

- (a) which affects in any substantial way the scope, quality, or performance of the Works;
- (b) which limits in any substantial way, the Employer's rights or the Bidder's obligations under the Contract; or
- (c) whose rectification would affect unfairly the competitive position of other bidders presenting substantially responsive bids or
- (d) which is inconsistent with the bidding documents,.

**21.3** If a "Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.

**21.4** During techno-commercial Bid evaluation, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. The request for clarification and response shall be in writing or e-mail or through the portal, however, no change in the price or substance of the Bid shall be sought, offered or permitted. Reply shall be submitted by Bidder within a stated reasonable period of time. If Bidder does not provide clarifications of the information requested by the date and time set in the Employer's request for clarification, its Bids may be rejected.

## **22. Evaluation and Comparison of Bids**

**22.1** The Employer will evaluate and compare the Cover II i.e. Financial Bid of bidders whose bids are determined to be substantially techno-commercially responsive in accordance with Clause 21 of ITB.

**22.2** In case bids are invited on Item Rate Method and if the bid of the successful bidder is front loaded (i.e. the items which are to be executed in earlier part of construction period, are quoted high or bid with low rated items to be executed in the later part of contract period) in relation to the Engineer's estimate of the cost of work to be performed under the contract, the Employer may require that the amount of the performance security set forth in Clause 27 of ITB be increased to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the Employer, which shall be final, binding and conclusive on the bidder.

The Bank Guarantee / Insurance Surety Bond for the additional performance security shall be valid up to 90 days beyond the issue of Defects Liability Certificate for the work under the scope of the contract.

To assist in the examination, evaluation, and comparison of bids, the Employer may, at its discretion, ask any bidder for clarification of its Bid, including breakdowns of unit rates. The request for clarification and the response shall be through letter/e-mail but no change in the price or substance of the bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetical errors discovered by the Employer in the evaluation of the Bids in accordance with Sub-Clause 21.4 of ITB.

In case the cost as quoted by the bidders in their Price bid are tied among the bidders, Purchaser may go for Snap bid or other alternative method to decide the lowest successful bidder at its sole discretion.

**Snap bid** will be executed as follows:

In case the lowest tendered amount of two or more bidders is same, such lowest bidders will be asked to submit sealed revised offer in the form of letter, but the revised quoted rates should not be higher than the rates quoted at the time of submission of the tender earlier. The lowest tender shall be decided on the basis of revised offers.

In case any of such bidders refuses to submit revised offer then it shall be treated as withdrawal of his tender before acceptance.

If the revised tendered amount of two or more bidders received in revised offer is again found to be equal, the lowest tender, among such bidders, shall be decided by draw of lots in presence of authorized representatives of NHPC Limited and the lowest bidders those have quoted equal amount of tender.

**22.3** Deleted

### **23. 1 Public Procurement (Preference to Make in India), Order 2017:**

Bidder shall be Class-I Local Supplier under Public Procurement (Preference to Make in India), Order-2017 issued by the Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry vide No. P-45021/2/2017-PP (BE-II) dated 16.09.2020 or as amended from time to time.

#### **Definition of Make in India:**

##### **A) Definitions**

**Local content:** means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all custom duties) as a proportion of the total value, in percent.

**Class-I local supplier :** means a supplier or service provider, whose Goods/ Services /Works offered for procurement, meets the minimum local content as prescribed for “Class-I local supplier” under this order.

For procurement of Goods / Services / Works, irrespective of purchase value where there is sufficient local capacity and local competition, only Class-I local supplier shall be eligible to bid.

**Minimum local content:** Nodal ministry/department may prescribe only a higher percentage of minimum local content requirement to categorize a supplier as Class-I local supplier / Class-II local supplier / Non local supplier. For the items, for which Nodal ministry/department has not prescribed higher minimum local content notification under the order, it shall be 50% and 20% for Class-I local supplier / Class-II local supplier respectively.

##### **B) Verification of local content:**

- a) The 'Class-I local supplier' at the time of tender, bidding or solicitation shall be required to indicate percentage of local content and provide self-certification that the item offered meets the local content requirement for 'Class-I local supplier'. They shall also give details of the location(s) at which the local value addition is made.
- b) In cases of procurement for a value in excess of INR 10.00 Crores, the 'Class-I local supplier'/ 'Class-II local supplier' shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.
- c) False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of the General Financial Rules for which a bidder or its successors

can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities.

### **23.2 Restrictions under Rule 144(xi) of the General financial Rules (GFRs) 2017:**

- i. Any Bidder from a country which shares a land border with India will be eligible to bid in this tender only if bidder is registered with the Competent Authority {i.e. Registration Committee constituted by the Department of Promotion of Industry and Internal Trade(DPIIT), Govt. of India}. However, the said requirement of registration will not apply to bidders/sub-contractors from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Bidders may apprise themselves of the updated lists of such countries available in the website of the Ministry of External Affairs (23.07.2020, order (PP no.2).
- ii. Such registration should be valid for the entire period of bid validity or any extension thereof. However, in case the validity period of registration is less than bid validity period, the Bidder shall be required to submit the extension of the validity period of registration before the opening of price bids. (point 13, 23.07.2020, Order(PP no.1)
- iii. Further the successful bidder shall not be allowed to sub-contract works to any “Subcontractor” from a country which shares a land border with India unless such Subcontractor is registered with the competent Authority {Registration Committee constituted by the Dept of Promotion of Industry and Internal Trade (DPIIT), Govt. of India}. (point 11, 23.07.2020, Order(PP no.1)
- iv. A bidder is permitted to procure raw material, components, sub-assemblies, etc. from the vendors of countries sharing a land border with India without getting registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT, as it is not regarded as “sub contracting” (circular 12.03.2021)
- v. However, in case a bidder proposes to supply finished goods procured directly/indirectly from the vendors of the countries sharing land border with India, such vendors will be required to get registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT. circular 12.03.2021)

- vi. Bidders have to submit certificate in accordance with Application **Form 12** (as per applicability). If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for termination and further legal action in accordance with law.
- vii. “Bidder” for the purpose of above referred order (including the term 'tenderer', 'consultant', 'vendor' or 'service provider' in certain contexts) means any person or firm or company, including any member of a consortium or joint venture ( that is an association of several persons, or firms or companies) , every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.
- viii. Bidders from a country which shares a land border with India” mentioned in para above means; (point 8, 23.07.2020, Order (PP no.1):
  - a. An entity incorporated, established or registered in such a country; or
  - b. A subsidiary of an entity incorporated, established or registered in such a country; or
  - c. An entity substantially controlled through entities incorporated, established or registered in such a country; or
  - d. An entity whose beneficial owner is situated in such a country; or
  - e. An Indian (or other) agent of such an entity; or
  - f. A natural person who is a citizen of such a country; or
  - g. A consortium or joint venture where any member of the consortium or joint venture falls under any of the above.
- ix. The bidder shall comply with all the term and condition of the OM issued by the Department of Expenditure, Ministry of Finance, Govt. of India vide F. No 6/18/2019-PPD dated 23.07.2020 & 24.07.2020 read with its amendments thereof.

## ***F. Award of Contract***

### **24. Award Criteria**

Subject to Clause 26 of ITB, the Employer will award the Contract to the Bidder who has offered the lowest evaluated Bid price after e tendering and / or e-Reverse Auction (as the case may be), provided that such Bidder has been determined to be (a) eligible in accordance with the provisions of Clause 2 & 3 of ITB; (b) determined substantive responsive and (c) who has offered the lowest Evaluated Bid Price pursuant to Clause 22.

## **25. Employer's Right to accept any Bid or Reject any or all Bids**

Notwithstanding Clause 24 above, the Employer reserves the right to accept or reject any bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected bidder or bidders. However, the Bidder(s) who wish to seek reasons for such decision of cancellation/ rejection shall be informed of the same by Employer unless its disclosure reasonably could be expected to affect the sovereignty and integrity of India, the security, strategic, scientific or economic interest of the state or lead to incitement of an offence.

## **26. Notification of Award and Signing of Agreement.**

- 26.1 The bidder whose bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period through the "Letter of Acceptance", which will state the sum that the Employer will pay to the Contractor in consideration of the execution, completion by the Contractor as prescribed by the Contract.
- 26.2. The notification of award will constitute the formation of the Contract until the Formal Agreement is signed pursuant to clause 26.3 of ITB and further subject only to the furnishing of a performance security deposit in accordance with the provisions of Clause 27 of ITB. Within 28 days of date of issue of Letter of Acceptance, Contract Agreement shall be drawn with the successful bidder on prescribed Form.
- 26.3. The Agreement will incorporate all agreements between the Employer and the successful bidder. It will be signed by the Employer and the successful bidder after the performance security deposit is furnished.
- 26.4 The Contract shall be signed in three originals (two for employer and one for contractor). The language of the contract shall be English.
- 26.5 The Contractor shall furnish free of charge nos. of true copies of the Contract to the Employer as mentioned in Bidding Data.

## **27. Performance Security Deposit**

- 27.1 Within 28 (twenty eight) days after issue of the Letter of Acceptance, the successful bidder shall deliver to the Employer Performance Security in accordance with Clause 3 of General Conditions of Contract valid till 90 days beyond the end of Defect Liability Period. Additional performance security shall also be required to be given for front loaded bid or bid with low rated items to be executed in the later part of contract period as per clause -3 of GCC which shall be valid till the time of completion of works. The performance security shall not be released till liquidated damages, if any, is pending for recovery. If the contractor does not submit the performance security within the stipulated period due to any valid reason, Tender Inviting Authority may grant time extension for submission of performance security based on the request of contractor.

In case, the contractor does not submit performance security without a valid reason, the Employer shall impose simple interest @12% per annum on the full amount of applicable performance security (alongwith applicable taxes, if any) for the period of delay in submission of performance security. The interest on delayed period shall be calculated on pro rata basis for number of delayed days.

The interest accrued shall be payable by the Contractor within 14 days from the date of intimation by Tender Inviting Authority in form of Bank Demand Draft/ Banker Cheque in favour of 'NHPC Ltd', otherwise the same shall be recovered from any payment due or become due against bills / any other amount lying with NHPC.

The delayed submission of Performance Security by the Contractor shall be recorded in substantial completion and final completion certificates. Further, no claim for extension of time for completion period or any other type of claim on account of delayed submission of performance security shall be entertained.

**27.2** If contractor fails to submit the Performance Security within 45 days (for the contracts having time for completion - upto 12 months) or 60-days (for the contracts having time for completion - more than 12 months) from the date of issue of Letter of Award (LOA), then following actions shall be taken against such Contractor:

- i) Award shall summarily be terminated
- ii) EMD/ Bid security shall be forfeited.
- iii) The bidder shall be debarred / banned to participate in the business dealings with NHPC for a period of one year.
- iv) The name of the Contractor shall be hosted on the NHPC website etc. as per existing norms of NHPC / Govt. of India.
- v) Such defaulted contractor shall not be eligible to participate in the bidding process of re-tender of this work.

**27.3** Bidder shall communicate the following bank details of NHPC Limited, Corporate Office Faridabad to the issuing Bank for online confirmation of Bank Guarantee to be submitted in terms of this Clause:

Name of the beneficiary: NHPC Limited

Account No.: 10813608692

IFSC Code:- SBIN0017313

Branch:- CAG-II New Delhi (17313)

Address of the Bank:- State Bank of the India, 5th Floor, Redfort Capital, Parsvnath Towers, Bhai Veer Singh Marg, Gole Market, New Delhi-110001

*Bidder is required to submit the SFMS receipt issued by the bank along with its bid for BG Confirmation.*

## 28. Advances-Deleted

### 29 Corrupt or Fraudulent or Collusive or Coercive Practices

29.1 The Employer requires the bidders/contractors under this contract observe the highest standard of ethics during the procurement and execution of this contract. In pursuance of this policy, the Employer:

(a) defines, for the purpose of these provisions, the terms set forth below as follows:

- (i) **“corrupt practice”** means the offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement process or in contract execution; and
  - (ii) **“fraudulent practice”** means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to be detriment of the Employer, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Employer of the benefits of free and open competition.
  - (iii) **“collusive practices”** means a scheme or arrangement between two or more Bidders with or without the knowledge of the Borrower, designed to establish Bid prices at artificial, non- competitive levels;
  - (iv) **“coercive practice”** means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in a procurement process, or affect the execution of a contract.
  - (v) deleted
- (b) deleted
- (c) A Bid may be rejected by the Employer if it is determined at any stage that the respective Bidder has engaged in corrupt or fraudulent or collusive or coercive practices or defaulted commitments in competing for or in executing the contract in question and his Bid Security shall be forfeited. The Contractor shall not be entitled for any compensation whatsoever under this clause.
- (d) The Employer will declare a Bidder ineligible for a stated period of time to award a contract/contracts as per Guidelines on Banning of Business Dealings if he at any time determines that the Bidder has engaged in corrupt or fraudulent or collusive or coercive practices in competing for, or in executing, the contract.

- (e) The documents/information submitted by Contractor may be verified by the officials of the Employer for its authenticity at any time and the Contractor shall provide all facilities/co-operation in this regard. If it is found that any of the documents/information submitted by the Contractor is not genuine, the Employer shall have full rights to cancel his Bid, forfeit the bid security and terminate the Contract, if awarded.

### **30.0 PERMANENT ACCOUNT NUMBER (PAN) AND GSTIN**

The Bidder shall furnish to the Employer his Permanent Account Number issued by the Income Tax Authorities in India and Goods and Services Tax Identification number issued by the concerned Authorities in India. No payment shall be made to the Contractor unless he submits his Permanent Account Number (PAN) and Goods and Services Tax Identification number (GSTIN).

### **31.0 General**

- a) No Engineer of Gazetted Rank or other Gazetted Officer employed in Engineering or Administrative duties in an Engineering Department of the Government of India is allowed to work as a contractor/contractor's employee for a period of one year after his retirement from Government service, without the prior permission of the Government of India in writing. The bid shall become invalid and/or contract is liable to be cancelled if either the contractor or any of his employees is found any time to be such a person who had not obtained the permission of the Government of India as aforesaid before submission of the bid or engagement in the contractor's service.

Bidder shall also intimate the names of persons who are working with him in any capacity who are near relatives to any official of the Employer. Any breach of this condition by the bidder/contractor would render him liable to be removed from this contract. An undertaking in this regard shall be submitted by the bidder in its letter head as per format placed at **Form-9**.

- b) Bidder shall comply with the provisions of "Restrictions under Rule 144(xi) of the General financial Rules (GFRs) 2017" dated 23.07.2020 and subsequent clarifications.

Any bidder from a country which shares a land border with India (except to which the Government of India has extended line of credit or in which the Government of India is engaged in development projects as mentioned in Order Public Procurement No. 2 dt. 23.07.2020 or its subsequent revisions/amendments) will be eligible to bid only if the bidder is registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT.

The successful bidder shall not be allowed to sub contract works to any contractor from a country which shares a land border with India (except to which the Government of

India has extended line of credit or in which the Government of India is engaged in development projects as mentioned in Order Public Procurement No. 2 dt. 23.07.2020 or its subsequent revisions/amendments) unless such contractor is registered with the Competent Authority, i.e. Registration Committee constituted by DPI IT.

A bidder is permitted to procure raw material, components, sub assemblies, etc. from the vendors of countries sharing a land border with India without getting registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT, as it is not regarded as "sub-contracting".

However, in case a bidder proposes to supply finished goods procured directly/indirectly from the vendors of the countries sharing land border with India, such vendors will be required to get registered with the Competent Authority, i.e. Registration Committee constituted by DPIIT.

Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC) / Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorised agents, shall be exempted from the requirement of registration as mandated under Rule 144(xi) of GFRs 2017.

## **E- TENDERING INFORMATION**

### **REGISTRATION:**

- (i) Bidders are required to enroll on the e-Procurement module of the Central Public Procurement Portal by using the “Online Bidder Enrollment” option available on the home page. Enrolment on the CPP Portal is free of charge.
- (ii) During enrolment/ registration, the bidders should provide the correct/ true information including valid email-id & mobile no. All the correspondence shall be made directly with the contractors/ bidders through email-id provided.
- (iii) As part of the enrolment process, the bidders will be required to choose a unique username and assign a password for their accounts.
- (iv) For e-tendering possession of valid Digital Signature Certificate (Class II or Class III Certificates with signing key usage) is mandatory which can be obtained from SIFY/ nCode/ eMudra or any Certifying Authority recognized by CCA India on eToken/ SmartCard.
- (v) Upon enrolment on CPP Portal for e-tendering, the bidders shall register their valid Digital Signature Certificate with their profile.
- (vi) Only one valid DSC should be registered by a bidder. Bidders are responsible to ensure that they do not lend their DSCs to others which may lead to misuse and should ensure safety of the same.
- (vii) Bidders can then log into the site through the secured login by entering their user ID/ password and the password of the DSC/ eToken.

### **Searching for Tender documents:**

- a) There are various search options built in the CPP Portal, to facilitate bidders to search active tenders by several parameters. These parameters could include Tender ID, Organization Name, Location, Date, Value, etc. There is also an option of advanced search for tenders, wherein the bidders may combine a number of search parameters such as Organization Name, Form of Contract, Location, Date, Other keywords etc. to search for a tender published on the CPP Portal.
- b) Once the bidders have selected the tenders they are interested in, they may download the required documents/ tender schedules. These tenders can be moved to the respective ‘My Tenders’ folder. This would enable the CPP Portal to intimate the bidders through SMS/ e-mail in case there is any corrigendum issued to the tender document.
- c) The bidder should make a note of the unique Tender ID assigned to each tender, in case they want to obtain any clarification/ help from the Helpdesk.

## **Preparation for submission of Bid:**

Technical Bid and Price Bid to be submitted on-line at

<https://eprocure.gov.in/eprocure/app>.

- (i) For preparation of bid Bidders shall search the tender from published tender list available on site and download the complete tender document and should take into account corrigendum if any published before submitting their bids.

After selecting the tender document same shall be moved to the 'My favourite' folder of bidders account from where bidder can view all the details of the tender document.

- (ii) Bidder shall go through the tender document carefully to understand the documents required to be submitted as part of the bid. Bidders shall note the number of covers in which the bid documents have to be submitted, the number of documents – including the names and content of each of the document that need to be submitted. Any deviations from these may lead to rejection of the bid.
- (iii) Any pre-bid clarifications if required, then same may be obtained online through the tender site, or through the contact details given in the tender document.
- (iv) Bidders should get ready in advance the bid documents in the required format (PDF/xls/rar/dwf/jpg formats) to be submitted as indicated in the tender document/schedule. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document.
- (v) To avoid the time and effort required in uploading the same set of standard documents which are required to be submitted as a part of every bid, a provision of uploading such standard documents (e.g. PAN card copy, Annual Reports, Auditor Certificates etc.) has been provided to the bidders. Bidders can use "My Space" or "Other Important Documents" area available to them to upload such documents. These documents may be directly submitted from the "My Space" or "Other Important Documents" area as per tender requirements while submitting the bid, and need not be uploaded again and again. This will lead to reduction in the time required for bid submission process.

## **SUBMISSION OF BIDS:**

Two-Part Bid procedure shall be adopted for submission and evaluation of the bids. The Bidder shall accordingly prepare and submit the bids containing the required documents up to the date and time given in NIT. The bidder shall prepare the bid and submit the bid in following manner:

- i) Bidder should log into the site well in advance for bid submission so that he/ she upload the bid in time i.e. on or before the bid submission time.

- ii) Bidder should prepare the Tender Fee and EMD as per the instructions specified in the NIT/ tender document. The details of the DD/BC/BG/ others physically sent, should tally with the details available in the scanned copy and the data entered during bid submission time. Otherwise the uploaded bid will be rejected.
- iii) While submitting the bids online, the bidder shall read the terms & conditions (of CPP portal) and accepts the same in order to proceed further to submit their bid.
- iv) Bidders shall select the payment option as offline to pay the Tender Fee/ EMD and enter details of the DD/BC/BG/others.
- v) Bidder shall digitally sign and upload the required bid documents one by one as indicated in the tender document.
- vi) Bidders shall note that the very act of using DSC for downloading the tender document and uploading their offers is deemed to be a confirmation that they have read all sections and pages of the tender document without any exception and have understood the complete tender document and are clear about the requirements of the tender document.
- vii) Bidder shall note that each document to be uploaded for the tender should be less than 2 MB. Bid documents may be scanned with 100 dpi with black and white option which helps in reducing size of the scanned document. For the file size of less than 1 MB, the transaction uploading time will be very fast.
- viii) If price quotes are required in XLS format, utmost care shall be taken for uploading Schedule of quantities & Prices and any change/ modification of the price schedule shall render it unfit for bidding.

Bidders shall download the Bill of Quantities, in XLS format and save it without changing the name of the file. Bidder shall quote their rate in figures in the appropriate cells, thereafter save and upload the file in financial bid cover (Price bid) only. If the template of Bill of Quantities file is found to be modified/corrupted in the eventuality by the bidder, the bid will be rejected and further dealt as per provision of clause no 14.0 of ITB including forfeiture of EMD.

The bidders are cautioned that uploading of financial bid elsewhere i.e. other than in cover 2 will result in rejection of the tender.

- ix) Bidders shall submit their bids through online e-tendering system to the Tender Inviting Authority (TIA) well before the bid submission end date & time (as per Server System Clock). The TIA will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders at the eleventh hour.
- x) After the bid submission (i.e. after Clicking “Freeze Bid Submission” in the portal), the bidders shall take print out of system generated acknowledgement number,

and keep it as a record of evidence for online submission of bid, which will also act as an entry pass to participate in the bid opening.

- xi) Bidders should follow the server time being displayed on bidder's dashboard at the top of the tender site, which shall be considered valid for all actions of requesting, bid submission, bid opening etc., in the e-tender system.
- xii) All the documents being submitted by the bidders would be encrypted using PKI (Public Key Infrastructure) encryption techniques to ensure the secrecy of the data. The data entered cannot be viewed by unauthorized persons until the time of bid opening. The confidentiality of the bids is maintained using the secured Socket Layer 128 bit encryption technology.

**ASSISTANCE TO BIDDERS:**

- xiii) Any queries relating to the tender document and the terms and conditions contained therein should be addressed to the Tender Inviting Authority for a tender or the relevant contact person indicated in the tender.
- xiv) Any queries relating to the process of online bid submission or queries relating to CPP Portal in general may be directed to the 24X7 CPP Portal Helpdesk No.0120-4200462, 0120-4001002, 0120-4001005, 0120-6277787, E-mail:support-eproc[at]nic[dot]in..

Toll Free **Number 1800-3070-2232. Mobile Nos. 91-7878007972 and 91-7878007973.**

### BIDDING DATA

Ref. Clause	Description	Particulars
1 of ITB	Name of Work	"Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad"
1 of ITB	Time for Completion/ Completion period	2 months
1 of ITB	Tender Reference No.	NH/CCW/CC-IV/CO-351/PR10024/190
12 of ITB	Bid Validity	120 days
13 of ITB	Earnest Money Deposit (EMD)	Rs. 11,000/- (Rupees Eleven Thousand Only) in the form of BG / DD in favour of "NHPC Ltd." payable at Faridabad or Insurance Surety Bond / Notarized copy of the valid Certificate of Recognition issued by DIPP to start Ups as per ITB Clause 13.
16 of ITB	Deadline for online Submission of Bids	Date: 20.12.2024 (17:00 Hrs.)
	Deadline for offline submissions of Bids	Date: 23.12.2024 (17:00 Hrs.)  <b>Venue : General Manager (CC-IV),</b> Room No. 220, Contracts Civil Division, Second Floor, Jyoti Sadan (Old Building), Corporate Office, NHPC Limited Sector-33 Faridabad Haryana-121003
19 of ITB	Time and Date for Opening of Technical bid	Date: 24.12.2024 (15.00 Hrs)
19 of ITB	Time, Date & Venue of opening Price bid	Shall be intimated separately to bidders whose bids are found to be technically responsive.
26 of ITB	Copies of Agreement to be provided by the Contractor free of charge.	Original three (two for employer and one for contractor)  True Copy: 3 Copy

**Personnel Capabilities**

## Qualification and Experience of Key personnel

Sr. No.	Key personnel position	Qualification	Experience

## **INFORMATION FOR BIDDERS (IFB)**

### **SECTION-III**

- **LETTER OF TENDER FORM,**
- **QUALIFICATION INFORMATION,**
- **FORM OF DECLARATION,**

**SECTION III**  
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Form-11	Certificate of Local Content
Form-12	Declaration regarding Compliance of restrictions under Rule 144(xi) of GFR-2017 regarding procurement from bidders from a country or countries sharing Land Border with India.
Form-13	Checklist for Bidders

**FORM – 1****General Information***Bidders are requested to complete the information*

1.	Name of firm		Corporate Identity No. (CIN):.....	
2.	Head office address		Country:	
	Principal Place of Business:			
3.	Telephone	Contact Person(s)		
	Mobile No.Email	Name		
		Title/Position		
4.	Place of incorporation / registration			
	Date			
5.	Legal status of firm			
	Field of specialty in business			
6.	Whether Start-up :			
7.	Number of present permanent employees:			
		Detail	Civil Engineers	Other Engrs
		Nos.		
8.	Quality assurance system in head office		Certified by:	
9.	Agent or representative in INDIA		(if exists)	
	Name			
	Address			
	Telephone		Fax & Email	

10	<p><b>Authorization of Person(s) signing the bid on behalf of the Bidder</b></p> <p>a) Full Name: .....</p> <p>b) Designation: .....</p> <p>c) Signing as: .....</p> <p><input type="checkbox"/> A sole proprietorship firm: The person signing the bid is the sole proprietor/ constituted attorney of the sole proprietor,</p> <p><input type="checkbox"/> A partnership firm: The person signing the bid is duly authorised being a partner to do so, under the partnership agreement or the general power of attorney,</p> <p><input type="checkbox"/> A company: The person signing the bid is the constituted attorney by a resolution passed by the Board of Directors or in pursuance of the Authority conferred by Memorandum of Association.</p> <p><input type="checkbox"/> A Society: The person signing the bid is the constituted attorney.</p> <p><i>Documents to be submitted: Registration Certificate/ Memorandum of Association/ Partnership Agreement/ Power of Attorney/ Board Resolution</i></p>
11	<p><b>Following documents w.r.t. legal status of the firm / company shall be furnished by the bidder:</b></p> <p><b>I. In case of Sole Proprietorship Concern:</b></p> <p>i. The full name of an individual proprietor, his/her parentage, documentary proof of his/her age, permanent address and present postal address/ contact details.</p> <p>ii. A deed of declaration by the Proprietor, that no other individual or company has any share in the concern.</p> <p><b>II. In case of Partnership Firm:</b></p> <p>i. Certified photocopy of the Partnership Deed, with upto date amendments (if any).</p> <p>ii. Registration certificate issued by the Registrar of Companies concerned, if any.</p> <p>iii. In case of change in the constitution of the firm due to retirement or death or addition of an incoming partner, photocopy of Deed of Dissolution, fresh registration Certificate and the fresh / extant Partnership Deed, as applicable.</p> <p><b>III. In case of Private Limited Companies:</b></p> <p>i. Certified to be true and upto date amended copy of Memorandum and Articles of Association of the Company.</p> <p>ii. Certificate of incorporation of the Company.</p> <p><b>IV. In case of Public Limited Companies and Statutory Corporations:</b></p> <p>i. Certified to be true copy of Memorandum and Articles of Association of the Company and/or the relevant Statute/Act.</p> <p>ii. Certificate of Incorporation of the company - In case of public limited Co. only.</p> <p>iii. Certificate of Commencement of Business - In case of public limited Co. only.</p>

Date

Signature

## FORM-2

### Letter of Tender Form

To

The-----,

NHPC Ltd.,

-----

-----,

1. We have read and examined the following tender documents relating to “Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad
  - i.
    - a) Agreement form
    - b) Notice Inviting Tender
    - c) Information and Instructions to Tenderers
    - d) Tender Forms, Form of Declaration and Qualification information
    - e) General Conditions of Contract and Schedules A, B, C, D, E, F and G
    - f) Forms
    - g) Special Conditions of Contract
    - h) Safety Manual
  - ii. Technical Specifications
  - iii. Drawings.
  - iv. Amendment issued in pursuance to Clause No. 8 of ITB.
2. We hereby tender for execution of the work referred to in the documents mentioned in paragraph one above upon the terms and conditions contained or referred to in the aforesaid documents and in accordance in all respects with the specifications, designs, drawings and other details given herein and at the rates contained in Schedule-A and within the period(s) of completion as given in Schedule-D and subject to such terms and conditions as stipulated in the Bid Document.
3. We agree to keep this tender open for acceptance for 120 days from the last date of online bid submission thereof and also agree not to make any modifications in its terms and conditions on our own accord.
4. A sum of Rs. 11000/- (Rupees Eleven Thousand only) is hereby enclosed in form of Demand Draft/Bank Guarantee from a Nationalised or Scheduled Bank of India as Earnest Money. We agree that if we fail to keep the validity of tender open, as aforesaid, or make

any modification in the terms and conditions of our tender on our own accord or fail to furnish the prescribed performance guarantee within prescribed period, after the acceptance of our tender, that Employer shall without prejudice to any other right or remedy available in law be at liberty to forfeit the said earnest money absolutely. Further, we agree if we fail to commence the execution of the works as provided in the Bid Documents referred to in paragraph-1 above that Employer shall without prejudice to any other right or remedy available in law be at liberty to forfeit the said performance guarantee absolutely/EMD.

Should this tender be accepted, we agree to abide by and fulfil all the terms and conditions and provisions of the above mentioned tender documents.

We certify that the Tender submitted by us is strictly in accordance with the terms, conditions, specifications etc. as contained in Tender Documents, referred to in paragraph-1 above, and it does not contain any deviations to the aforesaid documents. It is further certified that information furnished in the Tender submitted by us is correct to the best of our knowledge and belief.

5. We hereby also declare that any of the firm/Company participating in this Tender have not been declared ineligible at the time of submitting the bid under Para-6 of Guidelines on Banning of Business Dealings, declaration in this regard is placed at Form-.....
6. We also certify that the bidder is a .....(Class-I / Class-II / non-local supplier) supplier under Make in India Order-2017 or as amended from time to time, Undertaking in this regard is enclosed at Form-10.
7. We also certify that the bidder is not ineligible under the reasons mentioned at Para 3.3 of NIT.
8. We hereby declare the GST Tax structure considered (applicable and assessed 28days prior to bid submission date) in our bid for the present work.

(Signature of person duly authorised to sign the Tender on behalf of the Bidder along with seal of company)

Name\_\_\_\_\_

Signature\_\_\_\_\_

Date:\_\_\_\_\_

Designation\_\_\_\_\_

Name of Company\_\_\_\_\_

Witness:

Name &  
Address:\_\_\_\_\_

Signature\_\_\_\_\_

Date:\_\_\_\_\_

**FORM –3**

(Ref. NIT Clause-3.1(b))

**Work Experience Record**

**Name of Bidder:**\_\_\_\_\_

Sl. No.	Name of Project	Name & Address of Project Developer	Description of Work & Contract no.	Value of Work	Date of Award/	Date of Start of work	Date of completion of work	Remarks
1								
2								
3								
4								
5								

**Note:** Copies of Work experience certificates from appropriate authority of project Developer with regard to above to be submitted by bidder.

**Any addition work experience claimed after the bid submission shall not be considered during bid evaluation.**

**FORM –4**

(Ref. NIT Clause-3.1(c))

**Annual Turnover**

**Name of Bidder:** \_\_\_\_\_

<i><b>Fiscal Year</b></i>	<i><b>Turnover (unit )</b></i>
1.	
2.	
3.	

Fiscal year begins on 1<sup>st</sup> (First) April in each calendar year.

Date

Signature

NB: To please attach detailed data sheet wherever possible.

**FORM – 5**

(Ref. NIT Clause-2.1)

**FORM OF DECLARATION**

**M/s-----**(name of Tenderer) having its registered office at ----  
----- (hereinafter referred to as 'the Tenderer') having carefully studied all the Tender documents, specifications, drawings, etc. pertaining to the Work for "Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad (name of the Work)", the local and site conditions and having undertaken to execute the said works.

It is declared without any reservation whatsoever that:

- 1) the submitted Techno-Commercial/Price Bid proposals are without any deviations and are strictly in conformity with the documents issued by the Employer,
- 2) in case any deviations are noticed which might have crept inadvertently, that such deviations without reservation of any kind are automatically deemed to have been withdrawn by us,
- 3) we are familiar with all the requirements of the Contract and has not been influenced by any statement or promise of any person of the Employer,
- 4) we are experienced and competent Bidder to perform the Contract to the satisfaction of Employer and are familiar with all general and special laws, acts, ordinances, rules and regulations of the Municipalities, District, State and Central Government of India that may affect the work, its performance or personnels employed therein,
- 5) we hereby authorize the Employer to seek reference from our bankers for its financial position and undertake to abide by all labour welfare legislations, and
- 6) we confirm that the provisions Start up India Initiative of Gol, ..... are applicable to us. Any change in the status of the organization occurring during the currency of the contract shall be informed to Employer.

The above statement submitted by us is true and correct to our best knowledge.

For and on behalf of the Tenderer

Dated.....

**FORM – 6**

(Ref. NIT Clause-2.1(c))

**FORM OF DECLARATION OF INELIGIBILITY UNDERTAKING**

I/ We, M/s .....(Name of Bidder) hereby certify that I/we are not under the declaration of ineligibility for banning / delisting / blacklisting / debarment from business on the grounds mentioned in para 6 of Guidelines on banning of Business dealings (Annex-A) to Integrity Pact, ITB Clause 2 of Tender Document at the time of submitting the bid and shall intimate immediately of any such banning / delisting / blacklisting / debarring after submission of bid till award of tender.

**(Seal & Signature of the Bidder)**

**Form- 7**

**Deleted**

**Guidelines on Banning Business Dealings**

**1. Introduction**

NHPC Limited (NHPC) deals with Agencies viz. parties/ contractors/ suppliers/ bidders, who are expected to adopt ethics of highest standards and a very high degree of integrity, commitments and sincerity towards the work undertaken. It is not in the interest of NHPC to deal with Agencies who commit deception, fraud or other misconduct in the tendering process and/or during execution of work undertaken. NHPC is committed for timely completion of the Projects within the awarded value without compromising on quality.

- 1.2 Since banning of business dealings involves civil consequences for an Agency concerned, it is incumbent that adequate opportunity of hearing is provided and the explanation, if tendered, is considered before passing any order in this regard keeping in view the facts and circumstances of the case.

**2.0 Scope**

- 2.1 NHPC reserves its rights to remove from list of approved suppliers / contractors (if such list exists) or to Suspend/Ban Business Dealings if any Agency has been found to be non / poor performing or have committed misconduct or fraud or anything unethical or any of its action(s) which falls into any such grounds as laid down in this policy.
- 2.2 The procedure of (i) Removal of Agency from the List of approved suppliers / contractors; (ii) Suspension and (iii) Banning of Business Dealing with Agencies, has been laid down in these guidelines.
- 2.3 These guidelines shall apply to all the units of NHPC.
- 2.4 These guidelines shall not be applicable in Joint Venture, Subsidiary Companies of NHPC unless they are assignees, successors or executor.
- 2.5 The suspension/banning except suspension/banning under Integrity Pact shall be with prospective effect, i.e. future business dealings.

**3.0 Definitions**

*In these Guidelines, unless the context otherwise requires:*

- i) ***“Agency /Party / Contractor / Supplier / Bidders/Vendors” shall mean and include a public limited company or a private limited company, a joint Venture, Consortium, HUF, a firm whether registered or not, an individual, cooperative society or an association or a group of persons engaged in any commerce, trade,***

industry, etc. “Party / Contractor/ Supplier / Bidder/Vendor” in the context of these guidelines is indicated as ‘Agency’.

ii) **“Unit”** shall mean the Corporate Office, Project/ Power Station/ Regional Office/ Liaison Office or any other office of NHPC.

iii) **“Competent Authority”** and **‘Appellate Authority’** shall mean the following:

a) For works awarded/under Tendering from corporate office (falling in the competency of CMD /Board of Directors)

- Competent Authority: CMD
- Appellate Authority : Board of Directors

b) For works awarded/under Tendering from Corporate Office/Projects/ Power Stations/ Regional Offices/Liaison Offices (falling in the competency of Director /Executive Director)

- Competent Authority: Concerned Director/Executive Director as the case may be
- Appellate Authority: CMD /Concerned Director as the case may be

c) For works awarded/under Tendering from Corporate Office / Regional Offices / Projects/ Power Stations/ Liaison Offices (falling in the competency of CGM and below)

- Competent Authority in case of works awarded/under Tendering from Corporate Office/Regional office shall be CGM or GM of the concerned division as the case may be.
- Competent Authority: Head of the Unit not below the rank of General Manager
- Appellate Authority: Next higher authority

iv) **“Investigating Committee”** shall mean a Committee appointed by Competent Authority to conduct investigation.

#### **4.0 Initiation of Suspension /Banning**

Action for Suspension / Banning Business Dealings with any Agency shall be initiated by the department responsible for invitation of Bids/Engineer-in-charge after noticing the

irregularities or misconduct on the part of Agency concerned. Besides the concerned department, Vigilance Department of each Unit/ Corporate Vigilance may also be competent to initiate such action.

## **5.0 Suspension of Business Dealings.**

- 5.1 If the conduct of any Agency dealing with NHPC is under investigation, the Competent Authority may consider whether the allegations (under investigation) are of a serious nature and whether pending investigation, it would be advisable to continue business dealing with the Agency. If the Competent Authority, decides that it would not be in the interest to continue business dealings pending investigation, it may suspend business dealings with the Agency. The order of suspension would operate for a period not more than six months and may be communicated to the Agency as also to the Investigating Committee. The Investigating Committee may ensure that their investigation is completed and whole process of final order is over within such period. However if the investigations are not completed within six months ,the investigation committee shall put up the proposal to the competent authority for approval of extension of time maximum up to further three months with in which the committee shall conclude the proceedings .
- 5.2 The order of suspension shall be effective throughout NHPC in case of work falling in the Competency of CMD/ Board of Directors/Directors, in case of work falling in the competency of Executive Director suspension shall be effective throughout Region /Corporate office (in case the works awarded/under Tendering from Corporate office) .In case of work falling in the competency of HOP or below suspension shall be effective throughout the Project/Power Station and attached liaison offices/units and in case of work falling under the competency of CGM and below at Corporate office suspension shall be effective at Corporate office. During the period of suspension, no business dealing shall be held with the Agency.
- 5.3 If the Agency concerned asks for detailed reasons of suspension, the Agency may be informed that its conduct is under investigation. It is not necessary to enter into correspondence or argument with the Agency at this stage.
- 5.4 It is not necessary to give any show-cause notice or personal hearing to the Agency before issuing the order of suspension.
- 5.5 The format for intimation of suspension of business dealing is placed at **Appendix– I**

## **6.0 Ground on which Banning of Business Dealings can be initiated**

- 6.1 If the security consideration, including questions of loyalty of the Agency to NHPC so warrants;

- 6.2 If the director /owner of the Agency, proprietor or partner of the firm, is convicted by a Court of Law for offences involving moral turpitude in relation to its business dealings with the Government or any other public sector enterprises, during the last five years;
- 6.3 If the Agency has resorted to Corrupt, Fraudulent, Collusive, Coercive practices including misrepresentation of facts and violation of the any provisions of the Integrity Pact provided in the Contract.
- 6.4 If the Agency uses intimidation / threatening or brings undue outside pressure on NHPC or its official for acceptance / performances of the job under the contract;
- 6.5 If the Agency misuses the premises or facilities of NHPC, forcefully occupies or damages the NHPC's properties including land, water resources, forests / trees or tampers with documents/records etc.
- 6.6 If the Agency does not fulfil the obligations as required under the Contract and Violates terms & conditions of the contract which has serious affect for continuation of the Contract.
- 6.7 If the work awarded to the agency has been terminated by NHPC due to poor performance of the contract in the preceding 5 years.
- 6.8 If the Central Vigilance Commission, Central Bureau of Investigation or any other Central Government investigation Agency recommends such a course in respect of a case under investigation or improper conduct on agency's part in matters relating to the Company (NHPC) or even otherwise;
- 6.9 On any other ground upon which business dealings with the Agency is not in the public interest.
- 6.10 If business dealings with the Agency have been banned by the Ministry of Power, Government of India OR any PSU/ any other authority under the MOP if intimated to NHPC or available on MOP Website, the business dealing with such agencies shall be banned with immediate effect for future business dealing except banning under Integrity Pact without any further investigation.

(Note: The examples given above are only illustrative and not exhaustive. The Competent Authority may decide to ban business dealing for any good and sufficient reason).

## **7.0 Procedure for Banning of Business Dealings**

- 7.1 An Investigating Committee shall be constituted by the authority competent to Ban the dealing comprising members from Engineering/Indenting department (convener), Finance, Law and Contract. The level of the committee members shall be CGM and above for works falling in the competency of CMD/Board of Directors, General Manager and above for the works falling in the competency of Director/ Executive Director and DGM/SM with at least one member of the level of General Manager for works falling in the competency of CGM and below.
- 7.2 The order of Banning of Business Dealings shall be effective throughout the NHPC. During the period of Banning of Business Dealings, no Business Dealing shall be held with the Agency.
- 7.3 The functions of Investigating Committee in each Unit to be appointed by the competent authority in line with para 3 (iii) shall, inter-alia include:
- a) To study the report of the department responsible for invitation of bids and decide if a prima-facie case for banning exists, if not, send back the case to the Competent Authority.
  - b) To recommend for issue of show-cause notice (after vetting by legal deptt.) to the Agency by the concerned department as per clause 7.4 "Show Cause Notice".
  - c) To examine the reply to show-cause notice and call the Agency for personal hearing, if required.
  - d) To submit final recommendations to the Competent Authority for banning or otherwise including the period for which the ban would be operative considering the implications for NHPC on account of the act/omission on the part of the agency, intention of the agency as established from the circumstances of the case etc.

#### **7.4 Show Cause Notice**

Once the proposal for issuance of Show Cause Notice is approved by the Competent Authority, a 'Show Cause Notice' (as per format at **Appendix-II** of these guidelines) shall be issued to the delinquent Agency by the Competent Authority or by a person authorized by the Competent Authority for the said purpose. The Agency shall be asked to submit the reply to the Show Cause Notice within 15 days of its issuance. Further, the Agency shall be given an opportunity for Oral hearing to present its case in person, if it so desires, and the date for Oral Hearing shall necessarily be indicated in the Show Cause Notice.

The purpose of issuing the Show Cause Notice is only that the Agency concerned shall be given an opportunity to explain their stand before any action is taken. The grounds on which action is proposed to be taken shall be disclosed to the Agency inviting representation and after considering that representation, orders may be passed. Such

orders require only the satisfaction of the authority that passed the final orders.

If the Agency requests for inspection of any relevant document in possession of NHPC, necessary facility for inspection of documents may be provided.

During the conductance of oral hearing, only the regular duly authorized employees of Agency will be permitted to represent the Agency and no outsider shall be allowed to represent the Agency on its behalf.

Reply to the Show Cause Notice given by the Agency and their submissions in oral hearing, if any, will be processed by the Committee for obtaining final decision of the Competent Authority in the matter.

In case, no reply to Show Cause Notice is received from the Agency within stipulated time, further reminder shall be given with further period of 10 days thereafter if no reply is received action for processing ex-parte against the concerned Agency shall be initiated.

#### **7.5 Speaking Order**

The speaking order (reasoned order) for banning the business dealing with the Agency shall be issued by the Competent Authority or by a person authorized for the said purpose.

The decision regarding banning of business dealings taken after the issue of a Show Cause Notice and consideration of representation, if any, in reply thereto, shall be communicated to the Agency concerned along with a reasoned order. The fact that the representation has been considered shall invariably be mentioned in the communication. Also the fact that if no reply was received to the Show Cause Notice shall invariably be indicated in the final communication to the Agency. The format for intimation of banning of business dealing is placed at **Appendix– III**.

#### **7.6 Period of banning**

In case banning is processed for violation of provisions of Integrity pact or due to corrupt or fraudulent practices, the Competent Authority shall decide on the period of banning on case to case basis depending on the gravity of the case and considering the implications for NHPC on account of the act/omission on the part of the Agency, intention of the Agency as established from the circumstances of the case etc. The period of banning shall not be less than 6 months and shall not exceed 2 years and in case termination of contract due to poor performance the period of banning shall be for 5 years. For contracts awarded to JV/Consortium, a constituent of the JV shall be permitted to participate in the bidding process if it has not been banned on grounds of its role and responsibility in the tendering process for which the Joint Venture has been banned in Past. In case if the Joint Venture which has been banned does not indicate the roles and responsibility of individual Partner(s) then, the partner of the banned Joint Venture shall only be allowed to participate in the bidding process if its

participation share is less than 35%.

In case the information/documents submitted by Agency in competing for the tender found to be false/forged then NHPC, without prejudice to any other rights or remedies it may possess, shall recover from Agency the cost incurred in carrying out physical assessment for establishing veracity of such information/documents. In case Agency refuses to reimburse such cost to NHPC then banning period of Agency shall be extended by another one year.

#### **7.7 Effect of Banning**

As far as possible, the existing ongoing contract(s) with the Agency may continue unless the Competent Authority, having regard to the circumstances of the case, decides otherwise, keeping in view contractual and legal issues which may arise thereof. In case the existing Contracts are allowed to continue, the suspension/Banning of Business Dealing along with default of the Contractor shall be recorded in the experience certificate issued for the work.

The Agency, ( after issue of the order of banning of business dealings) would not be allowed to participate in any future tender enquiry and if the Agency has already participated in tender process as stand-alone OR constituent of joint venture and the price bids are not opened, his techno-commercial bid will be rejected and price bid will be returned unopened. However, where the price bids of Agency have been opened prior to order of banning, bids of Agency shall not be rejected and tendering process shall be continued unless Competent Authority having regard to the circumstances of the case decides otherwise keeping in view the Contractual, Legal issues which may arise thereafter. However, in case the suspension /Banning is due to default of an Agency for the provisions under Integrity Pact and the Agency happens to be Lowest Bidder (L1), the tendering process shall be annulled and fresh tenders shall be invited.

During the Suspension/ Banning period, if it is found at any stage that Agency has participated in tender enquiry under a different name then such Agency would immediately be debarred from the tender/contract and its Bid Security/Performance Security would be forfeited. Payment, if any, made shall also be recovered.

After Suspension/ Banning order, the Suspended/ Banned Agency shall not be allowed to participate as Sub-Vendor/Sub-Contractor in the tenders.

Further, if the Suspended/ Banned agency is an approved Sub-Vendor under any Contract for such equipment/component/service, the Main Contractor shall not be permitted to place work order/Purchase order/Contract on the Suspended/ Banned agency as a Sub-Vendor /Sub-Contractor after the date of Suspension/ Banning even though the name of the party has been approved as a Sub-Vendor /Sub-Contractor earlier.

There would be no bar on procuring the spares and awarding Contracts towards

Annual Maintenance (AMC)/ O&M/ Repair works on Agencies pertaining to the packages for which they have been banned provided the Equipment has been supplied by such Agency.

Banning of business dealing shall not be applicable to the Subsidiary Company of the Banned agency provided subsidiary company has not participated on the strength of the Banned agency. However, in case of a default by a Sub-Contractor, the banning shall be applicable to the Sub-Contractor as well as the Lead Partner of the concerned JV or the Sole bidder as the case may be.

**7.8 Hosting at NHPC website**

The concerned unit shall forward the name and details of the Agency (ies) banned along with period and reasons of banning to IT&C Division of Corporate Office for displaying the same on the NHPC website.

**8.0 Appeal against the Decision of the Competent Authority.**

The Agency may file an appeal against the order of the Competent Authority banning of business dealing before Appellate Authority. Such an appeal shall be preferred within 30 (Thirty) Days from the date of receipt of the order of banning of business dealing. Appellate Authority would consider the appeal if convinced may constitute another committee for further investigation. The investigation Committee constituted by the Appellate Authority shall study the report of the previous investigating committee and reply submitted by the Agency while filing its case for appeal and call the Agency for personal hearing , if requested by the Agency. Based on the recommendation of the committee Appellate Authority shall pass appropriate Speaking (Reasoned) order in line with Sub-Para 7.5 above which shall be communicated to the Agency as well as the Competent Authority (as per format enclosed as **Appendix-IV** with these guidelines).

**9.0 Circulation of the names of Agencies with whom Business Dealings have been banned**

The name of the concerned banned agency shall also be shared with MOP and other PSU in the sector and all the units of NHPC. The provisions of this policy supersede and will have overriding effect on all earlier guidelines, procedures & system issued for the similar purpose.

**(Format for Intimation of Suspension of business dealing)**

BY REGD. POST/SPEED POST/COURIER

No.....

Date.....

To

M/s .....

Attn.: Shri .....

**Sub:** Intimation of Suspension of Business Dealings

Dear Sir,

Whereas the work of ..... was awarded to your firm vide letter of award no ...dt.... amounting to Rs. .... OR In response to NHPC NIT (e-tender / physical tender) no .....dt. you have submitted your bid . (strike out whichever is not applicable )

Whereas the conduct of your firm in respect of the following is under investigation:

Brief of the default

“Whereas the Competent Authority prima facie considered the allegations (under investigation) are of a serious nature and decided pending investigation, it is not in the interest of the corporation to continue business dealing with your firm

This order shall have the following effects:

- (i) Further business dealings with your firm is Suspended within Region/Project/Unit/wide NHPC. The order of Suspension is effective with immediate effect and would operate for a period of six months or till the investigation is completed and whole process of final order is over within such period. However, if investigations are not completed in six months' time, the Competent Authority may extend the period of Suspension

- (ii) During the period of Suspension, no business dealing shall be held with your firm. No enquiry / bid / tender shall be issued to your firm nor will the bids submitted by your firm be entertained.
- (iii) In cases where tenders have already been issued to you and price bids are yet to be opened, the Price Bid submitted by you shall not be opened and BG/EMD, if any, submitted by you shall be returned.
- (iv) In cases where tenders have already been issued to you and Price Bids have already been opened, the tendering process shall be continued
- (v) In case of ongoing contracts between you & NHPC, (including cases where contract has already been awarded before the issue of Suspension order) you will be required to continue with the execution and perform as per terms of the contract.
- (vi)(a) In case the Firm is in Joint Venture the following would also be applicable:

i) **Participation of Agency in Joint Venture**

Tenders in which your firm has been proposed as Joint Venture Partner by any of the bidders and price bids have been opened prior to Suspension of your firm in such cases the tendering process shall not be annulled on this ground and the Agency shall be permitted to continue as Partner in the Joint Venture for such bidding. However where event of Price Bid opening has not taken place prior to Suspension/Banning of Agency then in such case Agency shall not be permitted to participate as Partner in the Joint Venture.

ii) **Banning of joint Venture:**

As the Joint Venture is Banned, your firm intends to bid as Partner(s) of Joint Venture in bidding process then it shall be permitted to participate in the bidding process if it has not been Banned on grounds of its role and responsibility in the tendering process for which the Joint Venture has been Banned in Past. In case if the Joint Venture which has been Banned does not indicate the roles and responsibility of individual Partner(s) then, the partner of the Banned Joint Venture shall only be allowed to participate in the bidding process if its participation share is less than 35%.

- (b) Your firm shall not be allowed to participate as Sub-Vendor/Sub-Contractor in the tenders.

Further if your firm is an approved Sub-vendor under any Contract for such equipment/component/service, the Main Contractor shall not be permitted to place work order/Purchase order/Contract on your agency as a Sub-Vendor/Sub-Contractor after the date of Suspension/ Banning even though the name of the party has been approved as a Sub-Vendor/Sub-Contractor earlier.

- (c) There would be no bar on procuring the spares and awarding Contracts towards Annual Maintenance (AMC)/ O&M/ Repair works on Agencies pertaining to the packages for which they have been Banned provided the Equipment has been supplied by such Agency.
- (d) Banning of business dealing shall not be applicable to the Subsidiary company of the Banned agency provided subsidiary company has not participated on the strength of the Banned agency.

On expiry of the above period of Suspension/Banning, you may approach..... (Indicate the concerned procurement department), with request for revocation of the order mentioning inter-alia the steps taken by you to avoid recurrence of misconduct which has led to Suspension.

Yours faithfully,

For & On behalf of NHPC

**Note:** Strike out whichever is not applicable

**(Format of Show Cause Notice)**

BY REGD. POST/SPEED POST/COURIER

No.....

Date.....

To

M/s .....

.....

Attn.: Shri .....

**Sub: Show Cause Notice**

Ref :

Dear Sir,

You are hereby required to Show Cause in writing within 15 days from the date hereof why Business Dealing with your firm should not be banned / your firm is placed in the Banning List (as the case may be) and be debarred from entering into any contracts with NHPC for the following reasons:

(Give Reasons)

Your reply (if any) should be supported by documents and documentary evidence which you wish to rely in support of your reply. In case you desire to present your case in person to NHPC, a personal hearing shall be conducted on ----- at ----- Hours for which prior intimation be furnished to this office. Should you fail to reply to this Show Cause Notice within the time and manner aforesaid, it will be presumed that you have nothing to say and we shall proceed accordingly.

Your reply, if any, and the documents / documentary evidence given in support shall be taken into consideration prior to arriving at a decision.

Yours faithfully,

For & On behalf of NHPC

**(Format for Intimation of Banning of Business Dealing)**

BY REGD. POST/SPEED POST/COURIER

No.....

Date.....

To

M/s .....

Attn.: Shri .....

**Sub:** Intimation of Suspension of Business Dealings

Dear Sir,

Whereas the work of ..... was awarded to your firm vide letter of award no ...dtd.... amounting to Rs. .... OR In response to NHPC NIT (e-tender / physical tender) no .....dt. you have submitted your bid .(strike whichever is not applicable)

Whereas the Competent Authority had prima facie considered the allegations as detailed below are of a serious nature and decided to conduct investigation.

“ Brief of the Default may be mentioned”

Whereas show cause notice vide no ... dtd....was served upon you. (whereas in spite of the opportunity given to you, you failed to submit the reply to the show cause notice within the time period mentioned there upon or further extended period, if any). Whereas you submitted the reply along with documents vide your letter no. \_\_\_\_\_dt. \_\_\_\_\_and presented your case in the personal hearing dated ..... (if any) . After considering the allegations made in the show cause notice, your reply to the show cause notice documents/documentary evidence in support thereof and personal hearing dated .....(if any), it has been decided to Ban the Business Dealing with you and you are hereby debarred from entering into contracts with NHPC.

(In order to make the Intimation of Banning of Business Dealing Speaking Order (reasoned order), the issue of a Show Cause Notice and consideration of representation in reply to show cause notice , opportunity of personal hearing, if any, shall be communicated to the Agency concerned along with a reasoned order. The order for Banning should also contain the reasons with detailed justification for conclusion of decision to Ban the Agency. Also the fact that if no reply to the Show Cause Notice was received or request for personal hearing was not made shall invariably be indicated in the communication to the Agency. The above order shall mention the grounds considering violation of any provision of Integrity Pact, any ground mentioned in Guidelines of Banning of Business Dealings, default by the agency under

fraudulent practice / or any unethical practice and/or violation of any provision of Tender/Contract Condition having serious implications.)

This order shall have the following effects:

- i) Further business dealings with your firm is banned with immediate effect . The order of Banning would operate for a period of .....years/month Competent Authority may extend the period of Banning.
- ii) During the period of Banning, no Business Dealing shall be held with your firm. No Enquiry / Bid / Tender shall be issued to your firm nor will the bids submitted by your firm be entertained.
- iii) In cases where tenders have already been issued to you and Price Bids are yet to be opened, the Price Bid submitted by you shall not be opened and BG/EMD, if any, submitted by you shall be returned.
- iv) In cases where tenders have already been issued to you and price bids have already been opened, the Tendering Process shall be continued.
- (v) In case of ongoing contracts between you & NHPC, (including cases where contract has already been awarded before the issue of Banning order) you will be required to continue with the execution and perform as per terms of the contract.
- (vi) (a) In case the Firm is in Joint Venture the following would also be applicable:

**i) Participation of Agency in Joint Venture**

Tenders in which your firm has been proposed as Joint Venture Partner by any of the bidders and price bids have been opened prior to Banning of your firm in such cases the tendering process shall not be annulled on this ground and the Agency shall be permitted to continue as Partner in the Joint Venture for such bidding. However where event of price bid opening has not taken place prior to Banning of Agency then in such case Agency shall not be permitted to participate as Partner in the Joint Venture.

**ii) Banning of joint Venture:**

As the Joint Venture is banned, your firm intends to bid as Partner(s) of Joint Venture in bidding process then it shall be permitted to participate in the bidding process if it has not been banned on grounds of its role and responsibility in the tendering process for which the Joint Venture has been banned in Past. In case if the Joint Venture which has been banned does not indicate the roles and responsibility of individual Partner(s) then, the partner of the banned Joint Venture shall only be allowed to participate in the bidding process if its participation share is less than 35%.

- (b) Your firm shall not be allowed to participate as Sub-Vendor/Sub-Contractor in the tenders.

Further if your firm is an approved Sub-vendor under any Contract for such equipment/component/service, the Main Contractor shall not be permitted to place work Order/Purchase Order/Contract on your agency as a Sub-Vendor/Sub-Contractor after the date of Banning even though the name of the party has been approved as a Sub-Vendor/Sub-Contractor earlier.

- ( c) There would be no bar on procuring the spares and awarding Contracts towards Annual Maintenance (AMC)/ O&M/ Repair works on Agencies pertaining to the packages for which they have been banned provided the Equipment has been supplied by such Agency.
- (d) Banning of Business Dealing shall not be applicable to the Subsidiary company of the Banned Agency provided subsidiary company has not participated on the strength of the Banned Agency. However, in case of a default by a Sub-Contractor, the banning shall be applicable to the Sub-Contractor as well as the Lead Partner of the concerned JV or the Sole bidder as the case may be.

On expiry of the above period of Banning, you may approach..... (Indicate the concerned procurement department), with request for revocation of the order mentioning inter-alia the steps taken by you to avoid recurrence of misconduct which has led to Banning.

Further if you desire to appeal against this order you may do so within 30 days from the date of issue of this order to the appellate authority as here under:

Appellate Authority: .....

Designation:

Address:.....

Ph . no.

e-mail :

Yours faithfully,

For & On behalf of NHPC

**Note:** Strikeout whichever is not applicable

**(Format for communication of Appellate Decision on Suspension/Banning Order)**

BY REGD. POST/SPEED POST/COURIER

No.....

Date.....

To

M/s .....

Attn.: Shri .....

**Sub:** Suspension Banning of Business Dealings - Intimation of decision of Appellate Authority

**Ref:** 1. Order dated ..... Placing M/s ..... on Suspension/Banning List by NHPC;

2. Your Appeal reference ..... Dt.....

Dear Sir,

This has reference to the order dt..... placing you on Suspension/Banning List and your appeal petition reference ..... dt.... on the same.

After considering the findings of the Original Authority in order and submissions made by you in your appeal, and the documents/documentary evidences available on record, it has been decided finally that :

- \* There is no infirmity in the order of the Original Authority, and the allegations stand substantiated and the Suspension/Banning for the period of ..... years/month from the date of order, as ordered by the original Authority is upheld,
- \* Considering your submissions, the order of Suspension/Banning passed by the original authority is upheld, but with a reduction in period of Suspension/Banning for ..... years/months from the date of order of original authority;
- \* Considering your submissions and the evidence available on record, there is enough justification to annul the order of the original authority.

(\*\*\* Incorporate any one of the above as applicable

##In order to make the Communication of Appellate Authority on Banning of Business Dealing Speaking Order (reasoned order), the fact that the representation of the agency has been considered and reference of grounds brought forward by the Agency in his defense and if any opportunity of personal hearing has been given to the Agency as a part of principle of natural justice shall invariably be mentioned in the communication, The order for Banning should also contain the reasons with detailed justification for conclusion of decision to Ban the Agency. Also the fact that if no sufficient ground has been furnished shall invariably be indicated in the final communication to the Agency. In case the option for Banning of Agency or reduction of Time Period for Banning of Agency is exercised then the above

order shall mention the grounds considering violation of any provision of Integrity Pact, any ground mentioned in Guidelines of Banning of Business Dealings, default by the agency under fraudulent or any unethical practices and/or violation of any provision of Tender/Contract Condition having serious implications.)

Yours faithfully,

For & On behalf of NHPC.

**FORM -8**

(Ref. NIT Clause-3.2(E))

**DECLARATION REGARDING APPLICABILITY OF START UPS UNDER START UP INDIA INITIATIVE**

To,  
Name & Address of the Employer

**Subject: Declaration as regard to applicability of Startup India Initiatives**

Startup India Initiative has been introduced by the Government of India and their revised definition has been notified in the Gazette notification-G.S.R. 127(E) dated 19.02.2019 . In this notification an entity shall be considered as a startup:-

- a) If it is incorporated as a private limited company (as defined in the Companies Act, 2013) or registered as a partnership firm (registered under section 59 of the Partnership Act, 1932) or a limited liability partnership (under the Limited Liability Partnership Act, 2008) in India; and
- b) up to ten years from the date of its incorporation/ registration; and
- c) if its turnover for any of the financial years since incorporation/ registration has not exceeded Rupees 100 crores; and
- d) if it is working towards innovation, development or improvement of products or processes or services, or if it is a scalable business model with a high potential of employment generation or wealth creation.

Provided that any such entity formed by splitting up or reconstruction of a business already in existence shall not be considered a “startup”.

As such, it is requested to provide the confirmation as regard to applicability of Startup India Initiative to your firm by submitting the declaration/undertaking by \_\_\_\_\_ (last date of bid submission).

-----Sd-----

**(Authorized Representative of  
Concerned Contract & Procurement Division)**

**Declaration/Undertaking**

- A) I/We confirm that the provisions of Startup India Initiatives are:  
[    ] Applicable to us and our organization falls under the definition of Startups for the tendered work.  
[    ] Not Applicable to us and our organization does not fall under the definition of Startups for the tendered work.  
Please (tick) the appropriate box [    ] and attach documents / certificates, as applicable.
- B) I/We also undertake to inform the change in this status as aforesaid during the currency of the contract, if any.

**(Authorized Representative of Firm)**  
(Ref. ITB Clause 31)

## Form-9

### Undertaking regarding near relative to any official of the Employer

(To be submitted on letter head)

I / We ..... (Name of bidder) confirms that following persons are near relatives to the officials of the Employer working with our firm / company:

Sr. No.	Name and Designation of Employee of Bidder	Name and designation of near relative working with Employer	Relation
1			
2			
3			

(Authorised Representative of Bidder)

Name

Designation

## Form-10

(Ref. NIT Clause no 3.2(F))

### **DECLARATION REGARDING INSOLVENCY PROCEEDINGS UNDER INSOLVENCY AND BANKRUPTCY CODE 2016**

**Subject: In respect of Domestic Competitive Bidding for** Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad.

It is declared that “no insolvency proceeding is admitted by the Adjudicating Authority against ..... (name of the bidder) under the IBC 2016”.

Further, it is declared that after submitting the bid till the time of award of work, ..... (name of the bidder) shall inform NHPC regarding any admission of application for corporate insolvency resolution process by the Adjudicating Authority under the IBC 2016 against ..... (Name of the bidder) and any suppression of such fact shall render the ..... (name of the bidder) liable for rejection of our bid and banning of business dealing as per terms and conditions of Guidelines of banning of business dealings under Integrity Pact.

(To be submitted on letter head duly signed by the authorized representative of the Bidder )

.....  
.....  
.....  
.....  
.....  
.....

## Form-11

(Ref. NIT Clause-2.1(b))

**(To be submitted by the bidder on the Companies Letter head duly signed by the authorised signatory)**

**(Format for Self-declaration for Local Content in accordance with Public Procurement (Preference To Make In India ) Order 2017 and as amended from time to time)**

We ,M/s\_\_\_\_\_ (name of Bidder) having registered office at \_\_\_\_\_ (Address of the Company) confirm that , we have examined the **Make In India** provisions circulated by Government of India, Ministry of Commerce and Industry , Department for Promotion of Industry and Internal trade (DPIIT), vide order no. P-45021/2/2017-PP(BE-II) dated 04.06.2020 , MoP order No. 11/05/2018-Coord. dated 28.07.2020, MoP order no. 11/05/2018-Coord dated 17.09.2020 and MoP order no. A-1/2021-FSC/Part-5 dated 16.11.2021 and its amendment thereof related to “Local content”, “Class-I local supplier”, “Class-II local supplier” & “Local content percentage” and other provision mentioned therein Further, we also acknowledge that in case, it has been found that the declaration against local content percentage given by us is false then action can be initiated against us as per Govt. Guidelines under Make in India issued from time to time.

Name of the bidder	Country of origin	(% of local content to be mentioned by bidder)

**Further we declare that cyber security/safety of the equipment/ process to be supplied / services to be rendered as safe to connect.**

### **Note:**

1. The responsibility of e-waste and its recycling/disposal shall be the responsibility of the registered e-waste handlers/Manufacturers/Suppliers. The list of registered e-waste handlers/Manufacturers/Suppliers for the corresponding items is to be given by the contractor.
2. All the items/components shall be supplied in compliance to cyber security policies/guidelines 2021 issued by CEA and any amendments thereof. The applicable security standards already

specified in the contract.

3. Further, all bidders shall keep on visiting website of department for promotion of Industry and Internet Trade (DPIIT), Ministry of Commerce & Industry i.e. <https://dpiit.gov.in> to get updated/latest information regarding public procurement (Preference to Make in India) Order 2017.

( )

**Signature of Authorised Signatory of Company**

*Note:*

*In case of Procurement for a value in excess of Rs.10 crores, the Class-I local supplier/Class-II Local supplier' shall be required to provide a certificate from the statutory auditors or cost auditors of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant ( in respect of suppliers other than companies) giving the percentage of local content.*

## Form-12

(Ref. NIT Clause no. 11.4.2)

### **Declaration regarding Compliance of restrictions under Rule 144(xi) of GFR-2017 regarding procurement from bidders from a country or countries sharing Land Border with India.**

I/We ..... (name of bidder) have read the clause no. .... of NIT regarding restrictions on procurement from a bidder of a country which shares a land border with India ; I hereby certify that this bidder is not from such a country and is eligible to be considered.

I/we ..... (name of bidder) have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India; I certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]

I/we ..... (name of bidder) have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India and on sub-contracting to contractors from such countries; I/we certify that this bidder is not from such a country or, if from such a country, has been registered with the Competent Authority and will not sub-contract any work to a contractor from such countries unless such contractor is registered with the Competent Authority. I hereby certify that this bidder fulfills all requirements in this regard and is eligible to be considered. [Where applicable, evidence of valid registration by the Competent Authority shall be attached.]

Evidence of valid registration by the Competent Authority is hereby attached.

(Strikeout whichever is not applicable)

Duly authorized to sign bid for and on behalf of

.....

.....

[name & address of Bidder and seal of company]

## Form-13

### Checklist for Bidders

(To be submitted as part of Technical bid)

(on Company Letter-head)

Bidder's Name \_\_\_\_\_

[Address and Contact Details]

Bidder's Reference No. \_\_\_\_\_ Date.....

Tender Document No. Tend No./ xxxx; Tender Title:

*Note to Bidders: This check-list is merely to help the bidders to prepare their bids, it does not over-ride or modify the requirement of the tender. Bidders must do their own due diligence also.*

Sr. No.	Documents submitted, duly filled, signed	Yes/ No/ NA
1.	Form 1 : General Information	
2.	Form 2 : Letter of Tender Form	
3.	Form 3 : Work Experience Record	
4	Form-4 : Annual Turnover	
5	Form-5 : Form of Declaration	
6	Form-6 : Declaration of Ineligibility	
7	Form-7 : Deleted, Annexure-A "procedure for Banning Business dealing"	
8	Form-8 : Form for Declaration of Start-up	
9	Form-9 Undertaking regarding near relative to official of the Employer	
10	Form-10 : Certificate of Insolvency	
11	Form-11 : self-Certificate of Local Content under Make in India policy, or from auditors/ cost accountant in case of Tenders above estimated cost Rs 10 Crore	
12	Form-12: Declaration regarding Compliance of restrictions under Rule 144(xi) of GFR-2017 regarding procurement from bidders from a country or countries sharing Land Border with India.	

Sr. No.	Documents submitted, duly filled, signed	Yes/ No/ NA
13	Bid Security	
14	Power of Attorney (if applicable)	
15	Price Schedule (BOQ) Excel Sheet downloaded from the Portal and filled and uploaded	
16	Any other requirements, if stipulated in NIT/ ITB; or if considered relevant by the Bidder	
17	Form 13: This Checklist	

.....

(Signature with date)

.....

(Name and designation)

Duly authorized to sign bid for and on behalf of.....

[name & address of Bidder and seal of company]

## **SECTION -IV**

### **GENERAL CONDITIONS OF CONTRACT (GCC) AND SCHEDULES**

## GENERAL CONDITIONS OF CONTRACT

### CONTENT

CLAUSE	DESCRIPTION
1.0	DEFINITIONS
2.0	INTERPRETATIONS
3.0	SECURITY DEPOSIT FOR PERFORMANCE
4.0	REFUND OF SECURITY DEPOSIT
5.0	SUFFICIENCY OF TENDER
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9.0	ASSIGNMENT AND SUB-LETTING
10.0	FACILITIES TO OTHER CONTRACTORS
11.0	CHANGES IN CONSTITUTION
12.0	POSSESSION AND USE OF SITE
13.0	ADVANCES AND RECOVERY THEREOF <b>Deleted</b>
14.0	COMMENCEMENT OF WORK
15.0	WORKS TO BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS AND ORDERS, ETC.
16.0	SETTING OUT THE WORKS
17.0	URGENT WORKS
18.0	DEVIATIONS
19.0	CONTRACTOR'S SUPERVISION
20.0	INSTRUCTIONS AND NOTICES
21.0	CONSTRUCTION EQUIPMENT- <b>Deleted</b>
22.0	PATENT RIGHTS
23.0	MATERIALS

24.0	POWER SUPPLY
25.0	SUPPLY OF WATER
26.0	WATCHING AND LIGHTING
27.0	WORK DURING NIGHT OR ON SUNDAYS AND HOLIDAYS
28.0	SITE DRAINAGE, PROTECTION OF TREES AND PREVENTION OF NUISANCE
29.0	LABOUR
30.0	REMOVAL OF CONTRACTOR'S MEN
31.0	MATERIALS OBTAINED FROM EXCAVATION AND TREASURE, TROVE, FOSSILS ETC
32.0	FORCE MAJEURE
33.0	LIABILITY FOR DAMAGE, DEFECTS OR IMPERFECTIONS AND RECTIFICATIONS THEREOF
34.0	CONTRACTOR'S LIABILITY AND INSURANCE
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37.0	TERMINATION OF CONTRACT ON DEATH
38.0	DEFAULT BY THE CONTRACTOR AND TERMINATION OF CONTRACT IN FULL OR IN PART
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55.0	SETTLEMENT OF DISPUTES
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## SECTION -IV

### GENERAL CONDITIONS OF CONTRACT

#### **CLAUSE-1: DEFINITIONS:**

In the contract, the following expression shall, unless the context otherwise requires, have the meanings thereby respectively assigned to them:

- (i) **Contract:** means the document forming the tender, acceptance thereof and the formal agreement executed between the NHPC Limited and the Contractor, together with documents referred to therein.
- (ii) **Contract Price:** means the amount arrived at by multiplying the quantities shown in the Bill of Quantities by the respective item rates as included in the Letter of Acceptance.
- (iii) **Contractor:** means the successful tenderer who is awarded contract to perform the work covered under these tender documents and shall be deemed to include the contractor's successors, executors, representatives or assigns.
- (iv) **Corporation or Employer:** means the NHPC Limited having its registered office at Sector 33, Faridabad (Haryana), Pin-121003 and includes therein legal representatives, successors and assigns.
- (v) **Tender Drawings:** means the drawings referred to in the Specifications and/or appended with the tender document.
- (vi) **Construction Drawing:** means such drawings approved in writing by the Engineer-in-Charge/ Employer and issued for actual construction of the Works from time to time by the Engineer-in-Charge.
- (vii) **Drawing:** means and shall include Tender drawing and Construction Drawing.
- (viii) **Engineer-in-Charge/Engineer:** means the Engineering Officer nominated by the Employer or its duly authorised representative to direct, supervise and be incharge of the works for the purpose of this contract.
- (ix) **Letter of Award or Acceptance:** means a letter from the Employer conveying the acceptance of the tender/offer subject to such reservations as may have been stated therein.
- (x) **Specifications:** means the Technical Specifications of the Works included in the Contract and any modification thereof or addition thereto made under Clause 18 or submitted by the Contractor and approved by the Engineer.
- (xi) **Sub-contractor:** means any person named in the Contract as a Subcontractor for a part of the Works or any person to whom a part of the Works has been subcontracted with the consent of the Employer and the legal successors in title to such person, but not any assignee of any such person.

- (xii) **Cost:** means all expenditure properly incurred, whether on or off the Site, including overhead and other charges properly allocable thereto but does not include any allowance for profit.
- (xiii) **Bill of Quantities (BOQ) or Schedule of Quantities & Prices:** means the priced and completed Schedule of Quantities & Prices or bill of Quantities forming part of the Contract.
- (xiv) **Time for Completion:** means the time for completing the execution of and passing the Tests on Completion of the Works as stated in the Contract (or as extended under Clause 39) calculated from the date of Letter of Acceptance.
- (xv) **Works:** means the works to be executed (including Plant) and remedying of defect therein in accordance with the Contract.
- (xvi) **Contractor's Equipment or Construction Equipment or Equipments:** means all appliances and things of whatsoever nature (other than Temporary Works) required for the execution and completion of the Works, but does not include Plant, materials or other things intended to form or forming part of the Works.
- (xvii) **Site:** means the land and/or other places, on or through which the Works are to be executed including any other lands or places which may be allotted for the purpose of the Contract.
- (xviii) **Plant:** means machinery, apparatus and like intended to form or forming part of Works.
- (xix) **Base Date:** means the Date 28 days prior to the latest date of submission of the Tender.
- (xx) **Party:** means the Employer or the Contractor as the context requires.

## **CLAUSE-2: INTERPRETATIONS:**

- 2.1 Words imparting the singular only shall also include the plural; he includes she and vice versa unless this is repugnant to the context. Unless specifically defined, words shall have normal meaning under the language of Contract.
- 2.2 Heading and marginal notes in these General Conditions shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof of the Contract.
- 2.3 Any error in description, quantity or price in Bill of Quantities or any omission there from shall not vitiate the Contract or release the Contractor from execution of the whole or any part of the Works comprised therein according to drawings and Specifications or from any of his obligations under the Contract.
- 2.4 Detailed drawings shall be followed in preference to small scale drawings (sketch drawings) and figured dimensions in preference to scaled dimensions. In the case of discrepancy between the Letter of acceptance issued by Employer, Special Conditions of Contract, Technical

Specifications, General Conditions of Contract, the Tender Drawings and/or Bill of Quantities and other documents of Contract the following order of precedence shall prevail:

- a) Agreement;
- b) Letter of Acceptance ;
- c) Special Conditions of Contract;
- d) General Conditions of Contract;
- e) Bill of Quantities;
- f) Technical Specifications;
- g) Contractor's Bid;
- h) Tender Drawings;
- i) Safety Manual.
- j) Any other document forming part of the Contract

### **CLAUSE-3: SECURITY DEPOSIT FOR PERFORMANCE:**

3.1 The Security Deposit shall comprise of following

- i) Performance Security Deposit to be furnished by the Contractor at the time of Award of Work.
- (ii) Retention Money to be recovered from Running Account bills of the Contractor.

3.2 The Contractor within 28 (twenty eight) days from the date of issue of Letter of Acceptance, shall furnish a Performance security deposit of 2% (two percent) of the Contract Price including additional Security Deposit for front loaded bid or bid with low rated items to be executed in the later part of contract period for due performance of contract, in any one of the following forms:

- (a) Demand draft on any Nationalised/scheduled Bank of India in the name of Employer; or
- (b) Bank Guarantee issued / confirmed from an Indian Nationalised/Scheduled Bank of India acceptable to Employer in the prescribed Proforma.
- (c) Insurance Surety Bond issued / confirmed by Insurance Company registered in India under Insurance Act 1938 or as amended from time to time and approved by the Insurance Regulatory Development Authority of India (IRDAI) acceptable to Employer in the prescribed proforma.

If the contractor does not submit the performance security within the stipulated period due to any valid reason, Tender Inviting Authority may grant time extension for submission of performance security based on the request of contractor.

In case, the contractor does not submit performance security without a valid reason, the Employer shall impose simple interest @12% per annum on the full amount of applicable

performance security (alongwith applicable taxes, if any) for the period of delay in submission of performance security. The interest on delayed period shall be calculated on pro rata basis for number of delayed days.

The interest accrued shall be payable by the Contractor within 14 days from the date of intimation by Tender Inviting Authority in form of Bank Demand Draft/ Banker Cheque in favour of 'NHPC Ltd', otherwise the same shall be recovered from any payment due or become due against bills / any other amount lying with NHPC.

The delayed submission of Performance Security by the Contractor shall be recorded in substantial completion and final completion certificates. Further, no claim for extension of time for completion period or any other type of claim on account of delayed submission of performance security shall be entertained.

If contractor fails to submit the Performance Security within 45 days (for the contracts having time for completion - upto 12 months) or 60-days (for the contracts having time for completion - more than 12 months) from the date of issue of Letter of Award (LOA), then following actions shall be taken against such Contractor:

- i) The bidder shall be debarred / banned to participate in the business dealings with NHPC for a period of one year.
- ii) The name of the Contractor shall be hosted on the NHPC website etc. as per existing norms of NHPC / Govt. of India.
- iii) Such defaulted contractor shall not be eligible to participate in the bidding process of re-tender of this work.

3.3 Retention money shall be deducted by the Engineer-in-Charge from the interim bills of the Contractor @ 3% (three percent) of the total value of each bill of the work done (including those of price variation) towards Security Deposit.

3.4 If the Contractor expressly requests in writing, he will be permitted to convert the amount of Retention Money deducted from his interim bills into Bank Guarantee as per prescribed proforma.

3.5 All compensation or other sums of money payable by the Contractor to the Employer under the terms of this Contract or any other contract or on any other account whatsoever, may be deducted from Security Deposit. Also in the event of the contractor's Security Deposit being reduced by reasons of such deductions, as aforesaid, the Contractor shall, within 14 days of receipt of notice of demand from the Engineer-in-Charge, make good the deficit in Security Deposit.

3.6 Should there arise any occasion under the Contract due to which the periods of validities of Bank Guarantees / Insurance Surety Bond as may have been furnished by the Contractor from time to time, are required to be extended/renewed, the Contractor shall get the validity periods of such guarantees or bonds extended/renewed, and furnish these to the Engineer-in-Charge one month

before the expiry date of the aforesaid Guarantees / Bonds originally furnished failing which the existing Bank Guarantees / Insurance Surety Bonds shall be invoked by the Engineer – in – charge. Also in case of any deficit in securities on any account as might occur or is noticed, the Contractor shall forthwith recoup/replace the same with acceptable Security Deposit.

- 3.7 Bank Guarantees / Insurance Surety Bonds as aforesaid shall be valid till 90 days beyond the date of issue of Defects Liability Certificate under the Contract (Clause 43). In case the bid of the successful Contractor is front loaded (i.e. the items which are to be executed in earlier part of construction period, are quoted high or low rated to be executed in the later part of contract period) in relation to the Employer's estimated rates for such items, the Employer may require the Contractor to submit additional performance security in the form as stated above, to a level sufficient to protect against financial loss in the event of default of the successful Contractor under the Contract. The amount of the increased performance security shall be decided at the sole discretion of the Employer, which shall be final, binding and conclusive on the Contractor. The Bank Guarantee / Insurance Surety Bond for the additional performance security shall be valid up to 90 days beyond the issue of Defects Liability Certificate for the work under the scope of the contract.

#### **CLAUSE-4 : REFUND OF SECURITY DEPOSIT:**

The Security Deposit less any amount due shall, on demand, be returned to the contractor after 30 days issue of expiry of Defects Liability Period for Security Deposit as per GCC 3.1. However the Security Deposit shall not be released till Liquidated Damages, if any, is pending for recovery. Additional Security Deposit for front loading shall be refunded within 30 days of completion of works. No interest on the amount of Security Deposit (including for the additional security for the front loaded bid) shall be paid to the Contractor at the time of release of Security Deposit.

#### **CLAUSE-5 : SUFFICIENCY OF TENDER:**

- 5.1 The Contractor shall be deemed to have satisfied himself as to the correctness and sufficiency of the Tender and of the rates and prices stated in the Schedule of Quantities and Prices all of which shall, except insofar as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and completion of the Works and the remedying of any defects therein.
- 5.2 If, however, during the execution of the Works the Contractor encounters on ground physical obstructions or physical conditions, other than climatic conditions on the Site, which obstructions or conditions were, in his opinion, not foreseeable by an experienced Contractor, the Contractor shall forthwith give notice thereof to the Engineer-in-Charge. Physical obstruction or conditions shall mean physical ground conditions existing at site and does not include man made conditions as well as climate conditions. On receipt of such notice, the Engineer-in-Charge shall, if in his opinion such obstructions or conditions could not have been reasonably foreseen by an experienced contractor shall determine any extension of time to which the Contractor is entitled to under Clause 39.2 shall notify the Contractor accordingly, with approval of the Employer. Such

determination shall take account of any instruction which the Engineer-in-Charge may issue to the Contractor in connection therewith, and any proper and reasonable measures acceptable to the Engineer-in-Charge which the Contractor may take in the absence of specific instructions from the Engineer-in-Charge.

**CLAUSE-6: CONTRACT DOCUMENTS:**

- 6.1 One copy of Contract shall be kept by the contractor on the Site in good order and the same shall at all reasonable time be available for inspection and use by the Engineer-in-Charge, his representatives or by other Inspecting Officers.
- 6.2 None of these Documents shall be used by the Contractor for any purpose other than that of this contract.

**CLAUSE 7: BREAKDOWN OF LUMP SUM ITEMS**

For the purposes of statements submitted in accordance with Sub-Clause 45, the Contractor shall submit to the Engineer-in-Charge, a breakdown for each of the lump sum items contained in the Tender. Such breakdowns shall be subject to the approval of the Engineer-in-Charge

**CLAUSE 8: DUTIES AND POWERS OF ENGINEER-IN-CHARGE'S REPRESENTATIVE:**

- 8.1 The duties of the representative of the Engineer-in-Charge are to watch and supervise the works and to test and examine any materials to be used or workmanship employed in connection with the works.
- 8.2 The Engineer-in-Charge may, from time to time in writing, delegate to his representative any of the powers and authorities, vested in the Engineer-in-Charge and shall furnish to the Contractor a copy of all such written delegation of powers and authorities. Any written instruction or written approval given by the representative of the Engineer-in-Charge to the contractor within the terms of such delegation shall bind the Contractor and the Employer as though it has been given by the Engineer-in-Charge.
- 8.3 Failure of the representative of the Engineer-in-Charge to disapprove any work or materials shall be without prejudice to the power of the Engineer-in-Charge thereafter to disapprove such work or materials and to order the pulling down, removal or breaking up thereof. The Contractor shall, at his own expense, again carry out such works as directed by the Engineer-in-Charge.
- 8.4 If the Contractor is dissatisfied with any decision of the representative of the Engineer-in-Charge, he will be entitled to refer the matter to the Engineer-in-Charge who shall thereupon confirm, reverse or vary such decision and the decision of the Engineer-in-Charge in this regard shall be final and binding on the contractor.
- 8.5 **Engineer shall act in accordance with the Contract:**

Any consultation that the Engineer holds with the Employer in pursuant to the Contract shall be entirely an internal matter between the Engineer and the Employer. The recommendations and determinations by the Engineer are subject to review and finalization by the employer. The same shall not be subject to matter of reference either by the Contractor or any arbitral tribunal. The Employer shall nominate one of its employees as Engineer. The Engineer shall obtain the specific approval of the Employer before taking action under the following Sub-Clauses of GCC and these Conditions:

- (a) consenting to the subletting of any part of the Works; under Clause 9;
- (b) determining an extension of Time for Completion under Clause 39;
- (c) evaluation of deviations under Clause 18;
- (d) payment pursuant to subsequent legislation under Clause 47.2 of GCC;
- (e) notwithstanding the obligation, as set out above, to obtain approval, if, in the opinion of the Engineer, an emergency occurs affecting the safety of life or of the Works or of adjoining property, he may, without relieving the Contractor of any of his duties and responsibility under the Contract, instruct the Contractor to execute all such work or to do all such things as may, in the opinion of the Engineer, be necessary to abate or reduce the risk. The Contractor shall forthwith comply, despite the absence of approval of the Employer, with any such instruction of the Engineer.

#### **CLAUSE 9: ASSIGNMENT AND SUB-LETTING:**

The Contractor shall not sub-let/sub-contract, transfer or assign the whole or any part of the work under the Contract. Provided that the Engineer-in-Charge may, at his discretion, approve and authorise the Contractor to sub-let any part of the Work, which, in his opinion, is not substantial, after the Contractor submits to him in writing (at least 21 days before the contractor intends to sublet part of the work ) the details of the part of the work(s) or trade proposed to be sublet, the name of the sub-contractor thereof together with his past experience in the said work/trade and the form of the proposed sub-contract. Nevertheless any such approval or authorisation by the Engineer-in-Charge shall not relieve the Contractor from his any or all liabilities, obligations, duties and responsibilities under the Contract. The Contractor shall also be fully responsible to the Employer for all the acts and omissions of the sub-contractor, his employees and agents or persons directly employed by the Contractor. However, the employment of piece-rate workers and purchase of material shall not be construed as sub-letting. Request for sub- contracting shall contain.

- a) Contractor's certification regarding the financial soundness of the proposed Sub-contractor for the work;
- b) its scope and estimated value in relation to the Contract Price;
- c) experience of the Sub-contractor, in the related areas of work;

- d) the manpower, equipment, material and other resources available with the Sub-contractor for the work;
- e) domicile of the Sub-contractor and particulars of its other existing operations or contracts if any, in India.

**CLAUSE-10: FACILITIES TO OTHER CONTRACTORS:**

- 10.1 The Contractor shall, in accordance with the requirements of the work as decided by the Engineer-in-Charge, afford all reasonable facilities to other contractors engaged contemporaneously on separate contracts and for departmental labour and labour of any other properly authorised authority or statutory body which may be employed at the site for execution of any work not included in the Contract or of any contract which the Employer may enter into in connection with or ancillary to the works. In all matters of conflict of interest, the Engineer-in-Charge shall direct what compromise should be made and his decision shall be final and binding on the parties.
- 10.2 If, however, pursuant to Sub-Clause 10.1 the Contractor shall, on the written request of the Engineer-in-Charge:
- (a) make available to any such other contractor, or to the Employer or any such authority, any roads or ways the maintenance of which is the responsibility of the Contractor ,
  - (b) permit the use, by any such, of temporary facilities or Contractor's Equipment on the Site, or
  - (c) provide any other service of whatsoever nature for any such,
- the Engineer-in-Charge shall determine the payment admissible to the Contractor at the cost of other contractors or Employer as the case may be.

**CLAUSE-11: CHANGES IN CONSTITUTION:**

Where the Contractor is a partnership firm, prior approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the Contractor is an individual or a Hindu undivided family business concern, such approval, as aforesaid, shall likewise be obtained before the Contractor enters into any partnership firm which would have the right to carry out the work undertaken by the Contractor. If prior approval as aforesaid is not obtained, the Contract shall be deemed to have been assigned in contravention of Clause 38 hereof and the same action will be taken and the same consequences shall ensure as provided for in the said Clause 38.

**CLAUSE-12 : POSSESSION AND USE OF SITE:**

12. 1 Save insofar as the Contract may prescribe:

- (a) the extent of portions of the Site of which the Contractor is to be given possession from time to time,
- (b) the order in which such portions shall be made available to the Contractor, and, subject to any requirement in the Contract as to the order in which the Works shall be executed, the Engineer in charge will give to the Contractor possession of so much of the Site, and such access as in accordance with the Contract, is to be provided by the Engineer as may be required to enable the Contractor to commence and proceed with the execution of the Works in accordance with the programme referred to in Clause 14, if any, and otherwise in accordance with such reasonable proposals of the Contractor. The Engineer will, from time to time as the Works proceed, give to the Contractor possession of such further portions of the Site as may be required to enable the Contractor to proceed with the execution of the Works in accordance with such programme or proposals, as the case may be.

- 12.2 If the Contractor suffers delay from failure on the part of the Engineer in charge to give possession in accordance with the terms of Sub-Clause 12.1, the Engineer-in-Charge shall, determine any extension of time to which the Contractor is entitled under Clause 39 and shall notify the Contractor accordingly, with approval of the Engineer in charge. The contractor shall be responsible to arrange the land for Contractor's infrastructure works namely field office(s), colony, workshop(s), stores, magazines for explosives in isolated locations, assembly-yard, and access thereto over routes as may be required for execution of the Works at his own cost and Engineer in charge shall not be responsible for making available the same.
- 12.3 The Contractor shall provide at his own cost all temporary pathways/roads required at site or to quarries or borrow areas and shall alter, adopt and maintain the same as required from time to time and shall bear all expenses and charges for special or temporary way leaves required by him in connection with access to the site and shall take up and clear them away and make good all damages done to the site as and when no longer required and as and when ordered by the Engineer-in-Charge. The Contractor shall also obtain at his risk and cost, any additional facilities outside the site which he may require for the purpose of the Works.
- 12.4 The Contractor shall not interfere unnecessarily or improperly with:
- a) the convenience of the public, or .
  - b) the access to and use and occupation of all roads and footpaths, irrespective of whether they are public or in the possession of the Engineer in charge or of others.

The Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from any such unnecessary or improper interference.

12.5 The Contractor shall be deemed to have been satisfied as to the suitability and availability of access routes to the Site. The Contractor shall use reasonable efforts to prevent any road or bridge from being damaged by the Contractor's traffic or by the Contractor's Personnel. These efforts shall include the proper use of appropriate vehicles and routes.

12.6 To transport the goods, unless otherwise stated:

- a) the Contractor shall give the Engineer not less than 21 days notice of the date on which any Plant or a major item of other Goods will be delivered to the Site,
- b) the Contractor shall be responsible for packing, loading, transporting, receiving unloading, storing and protecting all Goods and other things required for the Works, and
- c) the Contractor shall indemnify and hold the Employer harmless against and from all damages, losses and expenses (including legal fees and expenses) resulting from the transport of Goods, and shall negotiate and pay all claims arising from their transport.

If it is found necessary for the Contractor to move one or more loads of Goods over roads, highways, bridges on which such oversized and overweight items are not normally allowed to be moved, the Contractor shall obtain prior permission from the concerned authorities. Payments for complying with the requirements, if any, for protection of or strengthening of the roads, highways or bridges shall be made by the Contractor and such expenses shall be deemed to be included in the Contract Price.

Further, the Contractor shall comply with Carriage by Road Act 2007 & Carriage by Road Rules 2011 notified on 28.02.2011. The Contractor shall use only registered common carriers for transport of goods.

#### **CLAUSE-13: Deleted**

#### **CLAUSE-14 : COMMENCEMENT OF WORK:**

14.1 The Contractor shall commence the Work(s) immediately after the issue of Letter of Acceptance and shall proceed with the same with the expedition and without delay as may be expressly sanctioned or ordered by the Engineer-in-charge. If the Contractor commits default in the commencement of work within 30 days of issue of Letter of Acceptance, the Engineer-in-Charge shall without prejudice to any other right or remedy be at liberty to cancel the Contract and forfeit the earnest money/Performance Guarantee.

14.2 The Contractor shall submit along with his tender, the construction planning, phasing & sequence of construction, time & progress chart within the framework of construction schedule, i.e. Schedule 'E' for achieving the completion targets of Work(s) as a whole and also of each group/sub- group of work(s) as stipulated in Schedule 'E', showing the order or procedure and a statement showing the method and techniques of construction by which the contractor proposes

to carry out the Works. Such charts or programme shall be prepared in direct relation to the construction schedule i.e. schedule 'E' as well as the time stated in the Contract for completion of part of Works stipulated in Schedule 'C'. It shall indicate the commencement and completion of various trades or sections of the Works, distribution and balancing of work-load pertaining to construction activities in various structures/component parts of Works into working seasons duly taking into account working months available in each working season and number of working days available for working months, to arrive at seasonal monthly average and seasonal monthly peak progress with corresponding time periods.

Contractor shall follow such an agreed planning & scheduling. However, Contractor shall not be relieved from any of his duties, obligations or responsibilities under the Contract.

- 14.3 Within one month of issue of Letter of Acceptance, the Contractor shall submit, to Engineer for his consent Master Control Network including but not limited to comprehensive bar chart stipulating quantities of work to be executed supported by machinery deployment schedule for the execution of Works within the overall time frame included in the schedule incorporated in the Contract.
- 14.4 During the execution of Works, if it appears to the Engineer in-charge, that actual progress of works does not conform to the programme consented by him Engineer- in charge under sub-clause 14.3 above, the Contractor shall produce a revised programme dealing modifications to such programme necessary for ensuring completion of works within Time for Completion.
- 14.5 The Contractor shall provide a detailed month-wise cash flow estimate at the beginning of each financial year duly revised at quarterly intervals if required so by the Engineer- in – charge.
- 14.6 The submission to and consent by the Engineer-in-charge of such programmes or the provision of such general descriptions or cash flow estimates shall not relieve the Contractor of any of his duties or responsibilities under the Contract.

**CLAUSE-15: WORKS TO BE CARRIED OUT IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS AND ORDERS, ETC:**

- 15.1 The Contractor shall execute the Works in the most substantial and workmanlike manner and both as regards material and otherwise in every respect in strict conformity with the Specification. The Contractor shall also conform exactly, fully and faithfully to the designs, drawings, Specifications and instructions in writing in respect of the work, duly signed by the Engineer-in-Charge issued from time to time. The Contractor shall take full responsibility for the adequacy of all the site operations and methods of construction.

The Contractor shall give prompt notice to the Engineer-in-Charge, with a copy to the Employer, of any error, omission, fault or other defect in the design of or Specifications for the Works which he discovers when reviewing the Contract or executing the Works.

15.2 The Contractor shall be entitled to receive, the documents set forth herein during the performance of the Contract:

- |    |   |        |
|----|---|--------|
| a. | Construction drawings and revisions thereto                                     | 3 sets |
| b. | Specifications or revisions thereof other than standard printed Specifications. | 2 sets |
| c. | Explanations, instructions etc.   | 1 copy |

Such further drawings, explanations, modifications and instructions, as the Engineer-in-Charge may issue to the Contractor from time to time in respect of the Work, shall be deemed to form integral part of the Contract and the Contractor shall to carry out the Work accordingly.

15.3 The Contractor shall give notice to the Engineer-in-Charge, (at least 21 days in advance) whenever planning or execution of the Works is likely to be delayed or disrupted unless any further Construction Drawing or instruction is issued by the Engineer-in-Charge within a reasonable time. The notice shall include details of the Construction Drawing or instruction required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

15.4 If, by reason of any failure or inability of the Engineer-in-Charge to issue, within a time reasonable in all the circumstances, any drawing or instruction for which notice has been given by the Contractor in accordance with Sub-Clause 15.3, the Contractor suffers delay then the Engineer-in-Charge shall, after approval of the Employer determine any extension of time to which the Contractor is entitled under Clause 39 and shall notify the Contractor accordingly, with approval of the Employer .

#### **CLAUSE-16: SETTING OUT THE WORKS:**

16.1 The Engineer-in-Charge shall establish/indicate the Bench Marks and convey the same in writing to Contractor immediately after Letter of Acceptance. Engineer in-charge shall be responsible for correctness of such data / bench marks conveyed to the Contractor.

16.2 The Contractor shall be responsible for the true and proper setting out of all the work (in relation to the afore-mentioned Bench Marks) for the correctness of the location, grades, dimensions and alignment of all components of the work; and for the provisions of all instruments, appliances, materials and labour required in connection therewith. If at any time during the progress of

Works, any error shall appear or arise in the location, grades, dimensions, or alignment of any part of the Works, the Contractor on being required to do so by the Engineer-in-Charge shall, subject to Clause 16.1 hereof, at his own expense, rectify such error to the satisfaction of the Engineer-in-Charge.

- 16.3 The Contractor shall afford all reasonable facilities and assistance to the Engineer-in-Charge for checking the setting out and lines and grades established by the Contractor. The checking of any setting out or of any line and grade by the Engineer-in-Charge shall not in any way relieve the contractor of his responsibility for the correctness thereof.

**CLAUSE-17: URGENT WORKS:**

Urgent works means any urgent measures, which in the opinion of the Engineer-in-Charge, become necessary at the time of execution and/or during the progress of work to obviate any risk of accident or failure or to obviate any risk of damage to the structure, or required to accelerate the progress of work or which become necessary for security or for any other reason the Engineer-in-Charge may deem expedient.

If any urgent work (in respect whereof the decision of the Engineer-in-Charge shall be final and binding) becomes necessary, the Contractor shall execute the same as may be directed.

**CLAUSE-18: DEVIATIONS:**

- 18.1 The Engineer-in-Charge shall have powers to make any deviations in the original specifications or drawings or designs of the works or any part thereof that are, in his opinion, necessary at the time of or during the course of execution of the Works. For the aforesaid purpose or for any other reason, if it shall, in the opinion of the Engineer-in-Charge, be desirable, he shall also have the powers to make Deviations, such as (i) Variations in BOQ quantities (ii) Extra and (iii) Alterations or Substitutions of any kind. No such Deviations in the Specifications or Bill of Quantities, as aforesaid, shall in any way vitiate or invalidate the Contract and any such Deviations which the Contractor may be directed to do shall form integral part of the Contract as if originally provided therein and the Contractor shall carry out the same on the same terms & conditions in all respects on which he agreed to do the works under the contract subject to clause 18.2 *ibid*.

- 18.2 The rates for such items of work as are required to be executed due to Deviations, as stated in sub-clause 18.1 above shall be payable in the manner as stated hereunder

- a) (i) this item is not specified in the Contract as a “fixed rate item”
- (ii) this variation in quantity (in respect of BoQ quantity) multiplied by such specified (BoQ) rate for this item exceeds 0.25% of the Accepted Contract Amount, and
- (iii) the measured quantity of the item varies by more than 25% from the quantity of this item in the Bill of Quantities or other Schedule,

The rates already provided in the Bill of Quantities, shall apply in respect of the same item(s) of work to be executed due to Variation, in respect of quantities of individual items appearing in the Bill of Quantities.

In case of items for which rates are not available in the Bill of Quantities, the rates of such items as far as practicable shall be derived from the rates of analogous item(s) in the Bill of Quantities after submission of details by the Contractor on actual observance at Site. The decision to select analogous item(s) shall be taken by the Engineer, which shall be conclusive and binding on the Contractor.

In the cases, where analogous items are not available in the Bill of Quantities, such items shall be termed as extra item and the rates for such items and also for items exceeding the prescribed limits as mentioned in Sub Para (a) above due to increase in quantity(ies), the Contractor, within 15 days (or as agreed by the Engineer) from the receipt of order to execute such items shall submit rate analysis to the Engineer supported by documentary evidence of basic rates adopted therein, notwithstanding the fact that the rates for such items exist in the Contract; having regard to the cost of Materials, actual wages of labour and ownership & operational cost of Construction Equipment required as per standard norms or if standard norms are not specified/available then on the basis of labour/Materials/Construction Equipment actually engaged for the particular work. The Engineer-in-Charge shall within 16 weeks of receipt of the such request supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates based on the norms as mentioned in this clause. The standard norms for including indirect charges for labour and Materials specified herein shall mean as those specified in "Guidelines for preparation of Project Estimates for River Valley Projects (latest version)" of Central Water Commission, Govt. of India, and if not available therein, then those of State's Public Works Department. Standard norms for Construction Equipment use shall mean those of Bureau of Indian Standards (IS : 11590 : 1995 – latest version) and if not available therein, then those specified in "Guidelines for preparation of Project Estimates for River Valley Projects (latest version)" of Central Water Commission, Govt. of India.

Over and above the cost of labour, Materials arranged by the Contractor and ownership & operational cost of Construction Equipment, an element of 20% shall be allowed to cover the Contractor's overheads, profits, and supervision charges.

However, for materials issued by the Employer to the Contractor and/or Construction Equipment supplied on rental charge(s) by Employer to the Contractor during the course of execution of Works, the Contractor shall be entitled to only 10% (ten percent) of such costs to cover local transportation / handling, overheads, supervision, profits etc.

The new rate derived as above shall be payable only for the quantities in excess of 125% (one hundred twenty five percent) of BOQ quantities as worked out after meeting conditions (ii) and (iii) at para (a) above.

For items exceeding the prescribed limits as mentioned in sub para (a) above due to decrease in quantity (ies), compensation equivalent to 20% of the amount derived by multiplying (BOQ rate plus applicable escalation on the date of completion of whole of the work) by the quantities decreasing in excess of 25% of the BOQ shall be paid.

**Illustration:**

Prescribed limit            25%

Quantities executed    70%

Quantity admissible for compensation = 5% {i.e (100% - 70% - 25%) subject to prescribed limits as mentioned in sub para (a) above.}

Amount admissible = 20% of {5% of quantity x (BoQ rate + applicable escalation on the date of completion of whole of the work)}

The compensation for negative deviations shall not be applicable if the item has been substituted.

The Engineer-in-Charge shall examine the rate analysis submitted by the Contractor and fix the rates accordingly whose decision shall be conclusive, final and binding on the Contractor.

- 18.3 If requested by the Contractor, the Time for Completion of the Works shall, in the event of any deviation resulting in additional cost over the Contract Price, be extended in the proportion which the Deviation bears to the Contract Price plus such further additional time as may be considered reasonable by the Engineer-in-Charge and shall notify the Contractor accordingly.
- 18.4 Under no circumstances, the Contractor shall suspend the work on account of non-settlement of rates of such Deviated items.
- 18.5 Provided that no deviations instructed to be done by the Engineer-in- charge pursuant to Clause 18.1 shall be valid under Clause 18.2 unless within 15 days of the date of such instruction before the commencement of execution of deviated items, notice shall have been given either ;
- a) by the Contractor to the Engineer-in- charge of an intention to claim extra payment or varied rate or price or
  - b) by Engineer-in- charge to the Contractor of his intention to vary a rate or price for the deviated items.
- 18.6 No change in the rate or price for the any amount of variation in quantities for “Fixed Rate Items” items shall be considered for even if executed quantity of such item (s) varies beyond 25% of BOQ quantity. These “Fixed Rate Items” items are those whose rates are indicated by Employer in the BOQ.

**CLAUSE-19: CONTRACTOR'S SUPERVISION:**

- 19.1 The Contractor shall appoint at his own expense adequate number of engineers with sufficient experience to supervise the Works.

The contractor or his authorized representatives present at the Site shall superintend the execution of the Works with such additional assistance in each trade, as the work involved shall require and considered reasonable by the Engineer-in-Charge. Directions/instructions given by the Engineer-in-Charge to the Contractor's authorized representatives shall be considered to have the same force as if these had been given to the Contractor himself.

- 19.2 The Contractor shall communicate in writing to the Engineer-in-charge, the name of the accredited representative(s) who would be responsible for taking instructions from the Engineer-in-charge.

**CLAUSE-20: INSTRUCTIONS AND NOTICES:**

- 20.1 Except as otherwise provided in this Contract, all notices to be given on behalf of the Employer and all other actions to be taken on its behalf may be given or taken by the Engineer-in-Charge or any officer for the time being entrusted with the functions, duties and powers of the Engineer-in-Charge.

- 20.2 All instructions, notices and communications etc. under the Contract shall be given in writing and any such oral orders/instructions given shall be confirmed in writing and no such communication which is not given or confirmed in writing shall be valid. Further, if the Engineer in Charge or his representative gives an oral instruction and receives a written confirmation of the instruction from (or on behalf of ) the Contractor within 2 working days after giving the instruction and Engineer in Charge does not reply by issuing a written rejection and/or instruction within 7 working days after receiving the confirmation then the confirmation shall constitute the written instruction of the Engineer in Charge or authorized representative as the case may be.

- 20.3 Either Party may change a nominated address to another address by prior notice to the other Party.

- 20.4 The Engineer-in-Charge shall communicate or confirm the instructions to the Contractor in respect of the execution of work in a 'Work Site Order Book' maintained in the office of the Engineer-in-Charge or his representative and the Contractor or his authorised representative shall confirm receipt of such instructions by signing the relevant entries in this book. If required by the Contractor, he shall be furnished a certified true copy of such instruction(s).

**CLAUSE-21: CONSTRUCTION EQUIPMENT:**

- 21.1 The Contractor shall provide and install all necessary Construction Equipment required for the execution of the Works under the Contract, at his cost and shall use such methods and appliances for the purpose of all the operations connected with the Work covered by the Contract which shall ensure the completion of Work(s) within the specified Time for Completion.

- 21.2 Deleted

- 21.3 The Contractor shall not remove Construction Equipment, except for purpose of removing it from one part of the Site to another, without written consent of the Engineer.

Provided always that any such approval of Construction Equipment schedule in 21.2 shall not absolve the Contractor of his obligations for due execution of the Works within the Time for Completion as per the Contract.

Subject to the availability of any of Employer's Equipment and at the written request of the Contractor, such, Equipment may be issued to the Contractor on hire for being deployed on the Work contracted for, at pre-determined rates, terms and conditions at the sole discretion of the Engineer-in-Charge.

**CLAUSE-22: PATENT RIGHTS:**

The Contractor shall indemnify the Employer, its representatives or its employees against any action, claim or proceedings relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties or other charges which may be payable in respect of any article or material or part thereof included in the Contract. In the event of any claim being made or action being brought against the Employer or any agent, servant or employee of the Employer in respect of any such matters as aforesaid, the Contractor shall immediately be notified thereof. Provided that such indemnity shall not apply when such infringement has taken place in complying with the specific directions issued by the Employer, but the Contractor shall pay any royalties or other charges payable in respect of any such use, the amount so paid being reimbursed to the Contractor only if the use was the result of any drawings and/or specifications issued after submission of the tender.

**CLAUSE-23: MATERIALS:**

- 23.1 Subject to clause 31.2, the Contractor shall at his own expense provide/arrange all materials required for the bonafide use on Works under the Contract except those listed and specified in Schedule 'B'. The quantity of such materials as stipulated in the aforesaid schedule to be issued by the Employer will be that as may be actually required for the work and shall be subject to the terms and conditions as set forth in the sub-clause 23.4 *ibid*.
- 23.2 All materials to be provided by the Contractor shall be in conformity with the Specifications laid down in the Contract and the Contractor shall furnish from time to time proof and samples, at his cost, of the materials as may be specified by the Engineer-in-Charge for his approval before use in the Works. The Engineer-in-Charge shall also have powers to have such tests, in addition to those specified in the Contract, as may be required and the Contractor shall carry out the same. The cost of materials consumed in such tests and also expenses incurred thereon shall be borne by the Contractor in all cases except when the materials are agreed to be issued by the Employer under the Contract and also where such tests which are in addition to those provided in the Contract.
- 23.3 The Contractor shall maintain an account of receipt and use of materials brought by

Contractor for incorporation in the Works for the purpose of check and accounting and same shall be available for inspection of Engineer-in-charge.

The Engineer-in-Charge or his representative shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either on the site or at factory or workshop or other place(s) where such materials are assembled, fabricated, manufactured, or at any place where these are lying or from where these are being obtained. For this purpose, the Contractor shall afford such facilities as may be required for such inspection and examination.

**23.4 Deleted**

- 23.5 The Engineer-in-Charge shall have full powers for removal of any or all materials brought to site by the Contractor, which are not in accordance with the Contract Specifications or samples, approved by him. Should the Contractor fail to remove the rejected materials, the Engineer-in-Charge shall be at liberty to have them removed by other means at the Contractor's cost. The Engineer-in-Charge shall have full power to procure other proper materials to be substituted at Contractor's costs.

**23.6 Deleted**

**23.7 Deleted.**

**23.8 Deleted.**

**23.9 Deleted.**

- 23.11 Provisions contained hereinabove shall not in any way dilute the Contractor's liabilities under the Contract in any manner whatsoever.

**CLAUSE-24: POWER SUPPLY:**

- 24.1 The Employer, if requested by the Contractor will provide full assistance to the Contractor to obtain construction power from grid to meet part requirement as standby arrangement. Contractor will not have any claim, if construction power is not available from the grid. The Contractor will also be responsible for making all payments to the concerned authorities and will make no claims if the power is not available due to grid failure or otherwise. The Contractor shall make arrangements for the full anticipated requirement of construction power by installing Diesel Generating sets and operate these sets for generation of power required for execution of Works under the Contract, at no extra cost to the Employer.
- 24.2 No payment shall be made by the Employer for generation, distribution and consumption of electricity in execution of Works by the Contractor.

**CLAUSE-25: SUPPLY OF WATER:**

The Contractor shall make his own arrangements for water required for and in connection with the work at his cost. It shall be the responsibility of the Contractor to satisfy himself that the water arranged by him is fit for construction & consumption & he shall adequately treat such water whenever it is not found fit for the said purposes.

**CLAUSE-26: WATCHING AND LIGHTING:**

The Contractor shall provide and maintain at his expense all lights, guards, fencing and watching when and where necessary or as required by the Engineer-in-Charge for the protection of the works or for the safety and convenience of those employed on the works or the public.

**CLAUSE-27: WORK DURING NIGHT OR ON SUNDAYS AND HOLIDAYS:**

- 27.1 Subject to any provisions to the contrary contained in the Contract, the Contractor shall have the options to carry out the works continuously during night, Sunday or holidays, without any additional cost to Employer.

**CLAUSE-28: SITE DRAINAGE, PROTECTION OF TREES AND PREVENTION OF NUISANCE:**

- 28.1 The Contractor shall, throughout the execution and completion of the Works and remedying of any defects therein have full regard for the safety of all persons entitled to be upon the Site and keep the Site (so far as the same is under his control) and the Works (so far as the same are not completed or occupied by the Employer) in an orderly state appropriate to the avoidance of danger to such persons.
- 28.2 The Contractor shall endeavor to protect from damage, the trees marked by the Engineer-in-Charge at the site of work or in the lands licensed to him for use under the contract. Where necessary, the contractor shall provide at his expense temporary fencing to protect such trees. No tree shall be cut unless authorised by Engineer-in-Charge in writing to do so.
- 28.3 The Contractor shall at no time, cause or permit any nuisance on the site or cause any thing which shall cause unnecessary disturbance or inconvenience to the public in general and owners/tenants/occupants of adjacent properties.

**CLAUSE-29: LABOUR:**

- 29.1 The Contractor shall employ labour in sufficient numbers to maintain the required rate of progress and quality to ensure workmanship of the degree specified in the Contract. The Contractor shall not employ in connection with the works any person who has not completed fourteen years of age in terms of Child Labour (Prohibition and Regulation) Act 1986. The Contractor is encouraged, to the extent practicable and reasonable, to employ staff and labour with appropriate qualifications and experience from the region of the project. Unskilled labour shall be recruited from local region only.

29.2 The Contractor shall furnish and deliver fortnightly to the Engineer-in-Charge, a distribution return of the number and description by trades of the works of people employed on the works. The contractor shall also submit on the 4th and 19th of every month to the Engineer-in-charge a true statement showing in respect of the second half of the preceding month and the first half of the current month.

- i) The accidents that occurred during the said fortnight showing the circumstances under which they happened and the extent of damage and injury caused by them, and
- ii) The number of female workers who have been allowed maternity benefit as provided in the Maternity Benefit Act, 1961 or Rules made thereunder.

29.3 The Contractor including its subcontractor shall have the registration with EPFO and ESIC. Further all the workers deployed by Contractors or sub-contractors shall be members of Provident Fund and should be given the Universal Account Number (UAN). The EPF and ESI contribution on the part of employer in respect of this contract shall be paid by the contractor.

The Contractor including its subcontractor shall ensure that the payment is being made to contract workers through bank and shall submit the account statement in respect of salary paid to workers if required by Employer. The Contractor including its subcontractor should produce the documentary proof of depositing the ESI & EPF to the concerned departments along with monthly bills.

29.4 During continuance of the Contract, the Contractor and his sub-contractors shall abide at all times by all existing labour enactments and rules made thereunder, regulations, notifications and bye laws of State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. The Contractor shall keep the Principal Employer indemnified in case any action is taken against the Principal Employer by the competent authority on account of contravention by the Contractor of any of the provisions of any Act or rules made thereunder, regulations or notifications including amendments. If the Principal Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/acts/rules/regulations including amendments, if any, on the part of the Contractor, the Engineer/Principal Employer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Principal Employer.

The employees of the Contractor and his sub-contractor in no case shall be treated as the employees of the Principal Employer at any point of time.

Salient features of some of the major labour laws that are applicable to construction industry are given below.

(i) Employee Compensation Act 1923 or as amended.

The Act provides for compensation in case of injury or death by accident arising out of and during the course of employment.

(ii) Payment of Gratuity Act 1972

Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years service or more or on death or on retirement or superannuation at the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

(iii) Employees PF and Miscellaneous Provision Act 1952 including FPS-71/EPF-95.

The Contractor is required to possess PF Code from the concerned Regional Provident Fund Commission. The benefits payable under the Act are:

- (a) Pension or family pension on retirement or death as the case may be.
- (b) Deposit linked insurance on the death in harness of the worker.
- (c) Payment of PF accumulation on retirement/death etc.

(iv) Maternity Benefit Act 1961 (Amended)

The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(v) Contract Labour (Regulation and Abolition) Act 1970 with Rules framed there under as amended.

The Act provides for certain welfare measures and wages to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided by the Principal Employer by Law and recover the same from the Contractor from any amount/monies due to him. The principal employer is required to take Certificate of Registration and the Contractor is required to take a License from the designated Officer. The Act is applicable to the establishments of contractor if they employ 20 or more contract labour.

(vi) Minimum Wages Act 1948 (Amended)

The Contractor is to pay not less than the Rate of Minimum Wages notified by the appropriate Government as per provisions of the Act.

(vii) Payment of Wages Act 1936 (Amended)

It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

(viii) Equal Remuneration Act 1979

The Act provides for payment of equal wages for work of equal nature to male and female workers and not for making discrimination against Female employees in the matters of transfers, training and promotions etc.

(ix) Payment of Bonus Act 1965 and any further amendments thereof.

The Act is applicable to all establishments employing 20 or more workmen. The Act provides for payments of annual bonus subject to a minimum of 8.33 % of wages and maximum of 20 % of wages to employees drawing ₹ 21,000/- P.M. or less. The bonus to be paid to employees getting ₹ 7,000/- P.M. or above upto ₹ 21,000/- P.M. shall be worked out by taking wages as ₹ 7,000/- P.M. or the minimum wages for the scheduled employments as fixed by the appropriate Govt. whichever is higher. All amounts of Bonus are required to be paid within eight months of closing of financial year. The Act does not apply to certain establishments, classes of employees. The newly set up establishments are exempted for five years in certain circumstances.

(x) Industrial Disputes Act 1947(Amended)

The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

(xi) Industrial Employment (Standing Orders) Act 1946 (Amended)

It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Contractor on matters provided in the Act and get the same certified by the designated Authority.

(xii) Trade Unions Act 1926

The Act lays down the procedure for registration of trade unions of workmen and employers. The trade unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(xiii) Child Labour (Prohibition and Regulation) Act 1986

The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of child labour is prohibited in Building and Construction Industry.

(xiv) Inter-State Migrant Workmen's (Regulation of Employment and Conditions of Service) Act 1979

The Act is applicable to an establishment, which employs 5 or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, traveling expenses from home upto the establishment and back, etc.

(xv) The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996

All the establishments who carry on any building or other construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess @ 1% of the cost of construction. The Contractor to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

(xvi) The Factories Act 1948

The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

(xvii) The Personal Injuries (Compensation Insurance) Act, 1963 and any modifications thereof and rules made there under from time to time.

(xviii) Employees' State Insurance Act, 1948:

The Act provides for certain benefits to employees in case of sickness, Maternity and Employment injury and for certain other matter in relation thereto.

The compliance of the labour laws/acts shall be along with amendments (if any) of the respective acts.

The Contractor shall require his employees to obey all applicable Laws, including those concerning safety at work.

The definition of 'Principal Employer' for this Clause shall be as per Contract Labour (Regulation and Abolition) Act 1970.

- 29.5 The Engineer-in-Charge shall on a report having been made by an authorised Inspecting Officer as defined in the Contract Labour (Regulation and Abolition) Act and Rules or on his own in his capacity as Principal Employer, have the power to deduct from the amount due to the Contractor any sum required or estimated to be required for making good the loss suffered by worker(s) by reasons of non-fulfilment of the conditions of the Contract for the benefit of workers, non-payment of wages or of deductions made by him from wages which are not justified by the terms of the contract or non-observance of the relevant Acts and Rules with amendments made from time to time. If the Employer makes payment to Contractor's labour due to non-payment of wages to labour by the Contractor, the Employer shall recover the amount thus paid from the next Interim Payment of the Contractor.
- 29.6 The Contractor shall indemnify the Employer against any payments to be made under and for observance of the Regulations, Laws, Rules as stipulated in clause 29.4 above without prejudice to his right to claim indemnity from his sub-contractors. In the event of the Contractor's failure to comply with the provisions of sub-clause 29.4 or in the event of decree or award or order against the Contractor having been received from the competent authority on account of any default or breach or in connection with any of the provisions of sub-clause 29.4 above, the Engineer-in-Charge, without prejudice to any other right or remedy under the Contract, shall be empowered to deduct such sum or sums from the bills of the Contractor or from his Security Deposit or from other payments due under this contract or any other Contract to satisfy within a reasonable time the provisions of the various Acts/Laws/Rules/Codes as mentioned under sub-clause 29.4 above, on the part of the Contractor under the Contract on behalf of and at the expenses of the Contractor and make payment and/or provide amenities/facilities/services accordingly. In this regard, the decision of the Engineer-in-Charge shall be conclusive and binding on the contractor.
- 29.7 The Contractor shall at his own expense comply with or cause to be complied with the Provisions/Rules provided for welfare and health of Contract Labour in the Contract Labour (Regulation & Abolition) Act and other relevant Acts and Rules framed thereunder or any other instructions issued by the Employer in this regard for the protection of health and for making sanitary arrangements for workers employed directly or indirectly on the works. In case, the Contractor fails to make arrangements as aforesaid, the Engineer-in-Charge shall be entitled to do so and recover the cost thereof from the Contractor.
- 29.8 The Contractor shall at his own expense arrange for the safety provisions as required by the Engineer-in-Charge, in respect of all labour directly or indirectly employed for performance of the Works and shall provide all facilities in connection therewith. In case the Contractor fails to make arrangements and provide necessary facilities as aforesaid, the Engineer-in-Charge shall be entitled to do so and recover the cost thereof from the Contractor. But this will not absolve the Contractor of his responsibility or otherwise thereof.
- 29.9 In the event of any injury, disability or death of any workmen in or about the work employed by the Contractor either directly or through his sub-contractor, Contractor shall at all times indemnify and save harmless the Employer against all claims, damages and compensation under the

Employee Compensation Act, 1923 as amended from time to time or in other law for the time being in force and rules there under from time to time and also against all costs, charges and expenses of any smooth action by proceedings arising out of such accidents or injury, disability or death of a workmen and against all sum or sums which may with the consent of the Contractor be paid to compromise or compound any claim in this regard. If any award, decree or order is passed against the Contractor for recovery of any compensation under the Employee Compensation Act, 1923, for any injury, disability or death of a workman by any competent court, the said sum or sums shall be deducted by the Engineer-in- charge from any sum then due or that may become due to the Contractor or from his Security Deposit or sale thereof in full or part under the Contract or any other contract with the Employer towards fulfillment of the said decree, award or orders.

29.10 Provided always that the Contractor shall have no right to demand payments/claims whatsoever on account of his compliance with his obligations under this clause and Labour Regulation and the same are deemed to be covered in unit rates of BOQ.

**CLAUSE-30: REMOVAL OF CONTRACTOR'S MEN:**

The Contractor shall employ on the execution of the Works only such persons as are skilled and experienced in their respective trades and the Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any persons employed by the Contractor on the execution of the works who, in the opinion of the Engineer-in-Charge, misconducts himself or is incompetent or negligent in the proper performance of his duties. The contractor shall forth-with comply with such requisition and such person shall not be again employed upon the works without permission of the Engineer-in- charge. Any person so removed shall be replaced immediately.

**CLAUSE-31: MATERIALS OBTAINED FROM EXCAVATION AND TREASURE, TROVE, FOSSILS ETC:**

31.1 Materials of any kind obtained from excavation on the Site shall remain the property of the Employer and shall be disposed off as directed by the Engineer-in-Charge.

31.2 However, if any of the materials thus obtained from excavation on the site is such as can be used in the execution of the Works under the Contract, the Contractor will be allowed to use the same free of cost (except that any amount of royalty, levies are paid by the Contractor) for the aforesaid purposes provided the same is found suitable and is approved by the Engineer-in-Charge.

31.3 Fossils, coins, articles of value, structures and other remains or things of geological or archeological interest discovered on the site shall be the absolute property of the Employer. The Contractor shall take reasonable precautions to prevent his labour or any other person from removing or damaging any such article or thing and shall immediately upon the discovery thereof and before removal acquaint the Engineer-in-Charge with such discovery and carry out the Engineer-in-Charge's directions as to the disposal of the same at the expense of the Employer.

#### **CLAUSE-32: FORCE MAJEURE:**

32.1 The term "Force Majeure" shall herein means an exceptional event or circumstance:

- a) which is beyond a Party's control.
- b) which such Party could not reasonably have provided against before entering into the Contract.
- c) which, having arisen, such Party could not reasonably have avoided or overcome, and
- d) which is not substantially attributable to the other Party.

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

- i) war, hostilities (whether war be declared or not), invasion, act of foreign enemies,
- ii) rebellion, revolution, insurrection, military or usurped power, or civil war,
- iii) riot or commotion or disorder, strike by persons other than the Contractor's personnel and other employees of the Contractor and Subcontractors,
- iv) ionising radiation or contamination by radio-activity, and
- v) pressure waves caused by air craft or other aerial devices travelling at sonic or super sonic speed.
- vi) natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.
- vii) Spread of pandemic in the country where works are being executed.

32.2 If a Party is or will be prevented from performing any of its obligations under the Contract by Force Majeure, then it shall give notice to the other Party of the event or circumstances constituting the Force Majeure and shall specify the obligations, the performance of which is or will be prevented. The notice shall be given within 14 days after the Party became aware, or should have become aware, of the relevant event or Circumstance constituting Force Majeure.

The Party shall, having given notice, be excused performance of such obligations for so long as such Force Majeure prevents it from performing them.

Notwithstanding any other provision of this Clause. Force Majeure shall not apply to obligations of either Party to make payments to the other Party under the Contract.

32.3 Each Party shall at all times use all reasonable endeavours to minimize any delay in the performance of the Contract as a result of Force Majeure.

A Party shall give notice to the other Party when it ceases to be affected by the Force Majeure.

32.4 On occurrence of Force Majeure, the liability of either Party shall be dealt with, in accordance with the provisions of sub-clause 34.2

32.5 Should there be a request for extension of time arising out of "Force Majeure" the same shall be considered in accordance with clause 39.

**CLAUSE 33: LIABILITY FOR DAMAGE, DEFECTS OR IMPERFECTIONS AND RECTIFICATIONS THEREOF:**

33.1 If the Contractor or his labour or sub-contractor, injure, destroy or damage roads, fence enclosures, water pipes, cables, buildings, drains, electricity or telephone posts, wires, trees, grass line, cultivated land in the area in which they may be working or in the areas contiguous to the premises on which the work or any part of it is being executed or if any damage is caused during the progress of work, the Contractor shall upon receipt of a notice in writing in that behalf from the Engineer-in-Charge, make the same good at his costs.

33.2 If it appears to the Engineer-in-Charge or his representative at any time during construction or reconstruction or prior to the expiration of the Defects Liability Period that any work has been executed with unsound, imperfect or unskilled workmanship or that any materials or articles provided by the Contractor for execution of the Works are unsound or of a inferior quality, or otherwise not in accordance with the Contract, or that any defect, shrinkage or other faults found in the work arising out of defective or improper materials or workmanship, the Contractor shall, upon receipt of a notice in writing in that behalf from the Engineer-in-Charge, forthwith rectify or remove and reconstruct the work so specified in whole or in part, as the case may be, and/or remove the materials/articles so specified and provide other proper and suitable materials at his own expense.

33.3 If the Contractor fails to rectify, make good or remove and reconstruct the work as notified herein above, the Engineer-in-Charge shall have power to carry out such damages, defects or imperfections by any means or through any other agency or by himself at the risk and cost of the Contractor. In such a case the value of such rectification/replacement, reconstruction through such agencies shall be recovered from the Contractor from any amount due to him. The decision of Engineer-in-Charge in this regard shall be final and binding on the contractor.

**CLAUSE-34: CONTRACTOR'S LIABILITY AND INSURANCE:**

34.1 From commencement to completion of the Work(s) as a whole, the Contractor shall take full responsibility for the care thereof and for taking precautions to prevent loss or damage. He shall be liable for any damage or loss that may happen to the Works or any part thereof and to the Employer's Plant, Equipment and Material (hired or issued to the Contractor). Any such loss or damage shall be restored in good order and condition and in conformity in every respect with the requirements of the Contract Technical specifications and instructions of the Engineer-in-Charge.

34.2 i) Neither Party to the Contract shall be liable to the other in respect of any loss or damage which may occur or arise out of "Force Majeure" to the Works or any part thereof or to any material or article at site but not incorporated in the Works or to any person or anything or material whatsoever of either Party provided such a loss or damage could not have been foreseen or

avoided by a prudent person and the either Party shall bear losses and damages in respect of their respective men and materials. As such liability of either Parties shall include claims/compensation of the third Party also.

ii) Provided, however, in an eventuality as mentioned in sub-clause 34.2 (i) above, the following provisions shall also have effect:

(a) The Contractor shall, as may be directed in writing by the Engineer-in-Charge proceed with the erection and completion of the works under and in accordance with the Contract Specifications; and

(b) The Contractor shall, as may be directed in writing by the Engineer-in-Charge, re-execute the works lost or damaged, remove from the site any debris and so much of the works as shall have been damaged and carry the Employer's Material etc, to the Employer's stores. The cost of such re- execution of the works, removal of damaged works and carrying of Employer's store shall be ascertained in the same manner as for deviations and this shall be paid separately to the Contractor.

Provided always that the Contractor shall, at his own cost, repair and make good so much of the loss or damage as has been by any failure on his part to perform his obligations under the Contract or not taking precautions to prevent loss or damage or minimize the amount of such loss or damage.

34.3 The Contractor shall indemnify and keep indemnified the Employer against all losses and claims for death, injuries or damage to any person or any property whatsoever which may arise out of or in consequence of the construction and maintenance of works during the Time for Completion and also against all claims, demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto, and such liabilities shall include claims/compensations of the third Party.

34.4 Within 30 days of issuance of Letter of Acceptance the Contractor shall, without in any way limiting his obligations and responsibilities under this condition, insure and pay all costs and maintain the insurance premium throughout the period of Contract, with the following coverage:

(a) the Works, together with materials and Plant for incorporation therein, to the full replacement cost (the term "cost" in this context shall include profit), (CAR / EAR Policy) an additional \_\_\_\_% (as mentioned in Schedule D) of Contract Price shall be added in "cost" to

arrive at full replacement cost, to account for the materials which is to be issued to the Contractor free of cost by the Employer.

- (b) an additional sum of 15 per cent of such replacement cost as per (a) above, to cover any additional costs of and incidental to the rectification of loss or damage including professional fees and the cost of demolishing and removing any part of the Works and of removing debris of whatsoever nature (CAR / EAR Policy). The deductibles shall be as mentioned in Schedule D.
- (c) the Contractor's Equipment brought at the Site by the Contractor, and in terms of Clause 13.1.2(iii) of GCC., and
- (d) the contractor's workmen, property and public liability.

#### 34.5 Scope of Cover:

The insurance in paragraphs (a), (b) and (c) of Sub-Clause 34.4 shall be in the joint names of the Contractor and the Employer and shall cover:

- (a) The Employer and the Contractor against all loss or damage from whatsoever cause arising other than as provided in Sub-Clause 34.6 from the Commencement date until the date of issue of the relevant Completion Certificate in respect of the Works, and
- (b) the Contractor for his liability:
  - (i) during the Defects Liability Period for loss or damage arising from a cause occurring prior to the commencement of the Defects Liability Period, and
  - (ii) for loss or damage occasioned by the Contractor in the course of any operations carried out by him for the purpose of complying with his obligations under Clauses 43.

The Insurance Policy shall have a clause of taking no objection certificate from Engineer in Charge before release of any settled claim by insurance company to the Contractor.

#### 34.6 There shall be no obligation for the insurances in Sub-Clause 34.4 to include loss or damage caused by:

- (a) war, hostilities (whether war be declared or not), invasion act of foreign enemies.
- (b) rebellion, revolution, insurrection, or military or usurped power, or civil war.
- (c) ionizing radiations, or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel, radio-active toxic explosive or other hazardous properties of any explosive nuclear assembly or nuclear component thereof or
- (d) pressure waves caused by aircraft or other aerial devices traveling at sonic or supersonic speeds.

(e) defects in design in the scope of Engineer.

- 34.7 If the Contractor receives instructions from the Employer to insure against any of the risks mentioned in sub-clause 34.6, or any other risk, such insurance if available shall be effected, at the cost of the Employer.
- 34.8 In case of any loss from the reason other those detailed Para 34.6 & 34.7 above, difference of loss and amount realized from Insurance Company including deductibles shall be borne by the Contractor.
- 34.9 The Contractor shall, without limiting his or the Employer's obligations and responsibilities, insure, in the joint names of the Contractor and the Employer, against liabilities for death of or injury to any person or loss of or damage to any property (other than the Works) arising out of the performance of the Contract for at least the amount stated here under:
- (i) Public liability limits for bodily injury not less than Rs.2, 50,000 and/or for death not less than Rs. 5, 00,000 per person for each accident.
  - (ii) Property liability limits for each accident not less than Rs.10, 00,000 (ten lacs).

Limit of total liability both for Public and Property under sub-clause 34.9 (i) and 34.9(ii) shall be 10 % of Contract Price, In case, the total liability exceeds the limit of 10% of contract price, the minimum liability as mentioned under Para (i) & (ii) shall be applicable.

- 34.10 The insurance policy shall include a cross liability clause such that the insurance shall apply to the Contractor and to the Employer as separate insured.
- 34.11 The Employer shall not be liable for in respect of any damages or compensation payable to any workman or other person in the employment of the Contractor or any subcontractor, other than death or injury resulting from any act or default of the Employer, his agents or servants. The Contractor shall indemnify and keep indemnified the Employer against all such damages and compensation, other than those for which the Employer is liable as aforesaid, and against all claims, proceedings, damages costs, charges and expenses whatsoever in respect thereof or in relation thereto.
- 34.12 The Contractor shall insure against such liability and shall continue such insurance during the whole of the time and that any persons are employed by him on the Works. Provided that, in respect of any persons employed by any subcontractor, the Contractor's obligations to insure as aforesaid under this liability in respect of such persons in such manner that the Employer is indemnified under the policy, but the Contractor shall require such sub-contractor to produce to the Employer, when required, such policy of insurance and the receipt for the payment of the current premium.
- 34.13 Within 30 days of the Commencement Date, the Contractor shall provide the insurance policies / evidence of insurance to Engineer-in-charge. Such insurance policies shall be consistent with the

general terms agreed prior to the issue of the Letter of Acceptance. The Contractor shall effect all insurances for which he is responsible with insurers and in terms approved by the Employer.

- 34.14 The Contractor shall notify the insurers of changes in the nature, extent or Programme for the execution of the Works and ensure the adequacy of the insurances at all times in accordance with the terms of the Contract and shall, when required, produce to the Employer the insurance policies in force and the receipts for payment of the current premiums.
- 34.15 If the Contractor fails to effect and keep in force any of the insurances required under the Contract, or fails to provide the policies to the Engineer-in-charge within the period required by Sub-Clause 34.12 then and in any such case the Engineer-in-charge may effect the recovery of such premium on pro-rata basis from the Running Account bills of the Contractor. Additionally the payment of Running Account bills may also be suspended until the Contractor complies with the requirements of sub clause 34.12 of these conditions. If non-insurance prolongs for a period of continuous 2 months, the Employer may treat it as Default of Contractor as per the provisions of clause 38 of GCC.
- 34.16 In the event that the Contractor or the Employer fails to comply with conditions imposed by the insurance policies effected pursuant to the Contract, each shall indemnify the other against all losses and claims arising from such failure.
- 34.17 The Contractor shall at his own expense arrange for the safety provisions as laid down in applicable Law & Regulations and in Safety Manual of the Employer in respect of the works covered under this Contract. In case, the Contractor fails to comply with the provisions of the safety manual, the Engineer-in-Charge shall be entitled to and make the necessary arrangement at the risk and cost of the Contractor. This will, however, not absolve the Contractor of his overall responsibility to execute the works under the Contract.

#### **CLAUSE 35: SUSPENSION OF WORKS:**

- 35.1 The contractor shall on the order of the Engineer-in- charge suspend the progress of the Works or any part thereof for such time or times and in such manner as the Engineer-in-Charge may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer-in- charge. If such suspension is:
- (a) provided for in the Contract, or
  - (b) necessary for the proper execution of the Works or by reason of weather conditions or by some default on the part of the Contractor, or
  - (c) necessary for the safety of the Works or any part thereof.

The Contractor shall not be entitled to extra costs (if any) incurred by him during the period of suspension of the works; but in the event of any suspension ordered by the Engineer-in-Charge for reasons other than aforementioned and when each such period of suspension exceeds 14 days, the Contractor shall be entitled to such extension of Time for Completion of the Works as the

Engineer-in-Charge may consider proper having regard to the period or periods of such suspensions under clause 39 and shall notify the Contractor accordingly, with approval of the Employer .

- 35.2 If the progress of Works or any part thereof is suspended on the order of the Engineer-in-Charge for more than three months at a time the Contractor may serve a written notice on the Engineer-in-Charge requiring permission within 15 days from the receipt thereof to proceed with the Works or that part thereof in regard to which progress is suspended and if such permission is not granted within that time the Contractor by a further written notice so served may (but is not bound to) elect to treat the suspension where it affects part only of the Works as an omission of such part or where it affects the whole of the Works as an abandonment of the Contract by the Employer.

**CLAUSE 36: FORECLOSURE OF CONTRACT IN FULL OR IN PART DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK:**

- 36.1 If at any time after acceptance of the tender the Employer decides to abandon or reduce the scope of the Works for reason whatsoever and hence does not require the whole or any part of the Works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the Contractor, and the contractor shall have no claim to any payment of compensation or otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he could not derive in consequence of the fore- closure of the whole or part of the Works.

The Contractor shall be paid at Contract rates for full amount of the works executed at Site and, in addition, a reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilised on the works to the full extent because of the foreclosure:

- (a) Any expenditure incurred on preliminary works, e.g. temporary access roads, temporary labour huts, staff quarters and Site office; storage accommodation workshop, installation and dismantling of Construction Equipment (batching plant, crushing plant) and water storage tanks.
- (b) i) The Employer shall have the option to take over Contractor's materials or any part thereof, either brought to site or of which the Contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the Work), provided, however, the Employer shall be bound to take over the material or such portions thereof as the Contractor does not desire to retain. The cost shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the Contractor.
- ii) For Contractor's materials not retained by the Employer, reasonable cost of transporting such materials from Site to Contractor's permanent stores or to his other Works, whichever is less.

If materials are not transported to either of the said places, no cost of transportation shall be payable.

(c) If any materials issued by the Employer are rendered surplus, the same except normal wastage for the materials used in the works shall be returned by the Contractor to the Employer.

(d) Reasonable compensation for transfer of T&P from Site to Contractor's permanent stores or to his other works whichever is less. If T&P are not transported to either of the said places, no cost of outward transportation shall be payable.

36.2 The Contractor shall, if required by the Engineer-in-charge, furnish to him books of account, wage books, time sheets and other relevant documents as may be necessary to enable him to certify the reasonable amount payable under this condition.

#### **CLAUSE-37: TERMINATION OF CONTRACT ON DEATH:**

If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies, or if the Contractor is a partnership concern and one of the partners dies, then, unless the Engineer-in-Charge 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 Engineer-in-Charge shall be entitled to terminate the Contract as to its uncompleted part without the Employer being in any way liable to payment of any compensation whatsoever on any account to the estate of the deceased Contractor and/or to the surviving partners of the Contractor's firm on account of termination of the Contract. The decision of the Engineer-in-Charge that the legal representatives of the deceased Contractor or the surviving partners of the Contractor's firm cannot carry out and complete the Works under the Contract shall be final and binding on the parties. In the event of such termination, the Corporation shall not hold the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable for damages for not completing the Contract. Provided that the power of the Engineer-in-charge of such termination of Contract shall be without prejudice to any other right or remedy, which shall have accrued or shall accrue to him under the Contract.

#### **CLAUSE-38: DEFAULT BY THE CONTRACTOR AND TERMINATION OF CONTRACT IN FULL OR IN PART:**

38.1 If the Contractor:

- i) commits default in complying with or commits breach of any of the conditions of the Contract and does not remedy it or take effective steps to remedy it immediately after a notice in writing is given to him by the Engineer-in-Charge; or
- ii) fails to complete the Works or any item of Works within the time specified in Schedule 'C' or any extended time under the Contract and does not complete the Work(s) or any item of Work(s) within the period specified in a notice given in writing by the Engineer-in-Charge; or

- iii) is engaged in corrupt or fraudulent or Collusive or Coercive practices in competing for or in the execution of the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the contract and expel him from the Site. The Contractor shall not be entitled for any compensation whatsoever under this clause. For the purpose of this clause
  - a) **‘Corrupt Practice’** means offering, giving, receiving or soliciting of any thing of value to influence the action of a public official in the procurement or execution of Contract.
  - b) **‘Fraudulent Practice’** means mis-representation of fact in order to influence the tendering process or the execution of a Contract and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the employer of the benefits of free and open competition.
  - c) **‘Collusive Practice’** means a scheme or arrangement between two or more bidders, with or without the knowledge of Borrower/Employer, designed to establish Bid prices at artificial, non-competitive levels.
  - d) **‘Coercive Practice’** means harming or threatening to harm, directly or indirectly, person or their property to influence or affect the execution of Contract,
- iv) being an individual, or if a firm, any partner thereof, shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation for the purpose of amalgamation or reconstruction under any insolvency Act for the time being in force or make any conveyance or assignment of his effective or composition or arrangement for the benefit of his creditors or purport as to do, or if any application be made under any insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors; or
- v) being a company shall pass a resolution or the Court shall make an order for the liquidation of its affairs or a receiver or manager on behalf of the debenture holders shall be appointed or circumstances shall arise which entitle the Court or debenture holders to appoint a receiver or manager; or
- vi) shall suffer an execution in an execution being levied on his goods; or
- vii) assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not being incorporated in the work shall not be deemed to be subletting) or attempts to assign, transfer or sublet the entire works or any portion thereof without the prior written approval of the Engineer-in-Charge,

Then the Employer shall have powers to terminate the Contract in full or in part as aforesaid without prejudice to any other right or remedy which shall have accrued or shall accrue of which cancellation notice in writing to the Contractor under the hand of the Engineer- in-charge shall be conclusive evidence.

viii) the Employer has in place a Policy for suspension and Banning of Business Dealings as provided on NHPC Website [www.nhpcindia.com](http://www.nhpcindia.com) , the business dealings may be suspended or banned with the Contractor on account of any default by the Contractor under GCC Clause 38.1

- 38.2 The Employer shall, on such termination of the Contract, have powers to take possession of the site of work under the contract as well as the land/premises allotted to the contractor for his preliminary, enabling and ancillary works and any materials, constructional equipment, implements, stores, structures etc. thereon. The Employer shall also have powers to carry out the incomplete work by any means or through any other agency or by himself at the risk and cost of the Contractor.
- 38.3 If the expenses incurred or to be incurred by the Employer for carrying out and completing the incomplete work or part of the same, are in excess of the value of the work credited/to be credited to the Contractor, the difference shall be paid by the Contractor to the Employer. If the Contractor fails to pay such an amount, as aforesaid, within thirty days of receipt of notice in writing from the Engineer-in-Charge, the Engineer-in-Charge shall recover such amount from any sums due to the Contractor on any account under this or any other contract or from his Security Deposit or otherwise.
- 38.4 The Engineer-in-Charge shall have the right to sell any or all the Contractor's unused materials, Constructional Equipment, implements, temporary buildings/structures etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the Contractor under the Contract and if thereafter there may be any balance outstanding from the Contractor, the Employer shall have powers to recover the same as debt.
- 38.5 All decisions/actions of the Engineer-in-Charge under this clause, as aforesaid, shall be conclusive and binding on the contractor.

#### **CLAUSE-39 : TIME FOR COMPLETION AND EXTENSIONS:**

- 39.1 Time for Completion allowed for execution of the Works is as specified in Schedule 'C' of these conditions.
- 39.2 However, if the work is delayed on account of:
- i) Delay in handing over of site to the Contractor as per clause 12; or
  - ii) Delay in supply of construction drawings as per clause 15.4; or
  - iii) Increase in the quantity of work to be done under the contract as per clause 18; or
  - iv) Suspension of work as per clause 35; or
  - v) Rebuilding of work as per clause 34; or
  - vi) "Force Majeure" conditions as per clause 32 or

- vii) physical conditions not foreseeable by an experienced contractor as defined in clause 5.2 of GCC, or
- viii) Any other cause which, in the opinion of the Engineer-in-Charge is beyond the Contractor's control;

then, immediately upon the happening of any such event as aforesaid, the Contractor shall inform the Engineer- in-charge accordingly, but the Contractor shall nevertheless use constantly his best endeavors to prevent and/or make good the delay and shall do all that may be required in this regard. The Contractor/Engineer-in-Charge is required to jointly maintain Hindrance Registers **(Annexure-I)** for recording hindrances if any, while executing the Works. The Contractor shall request, in writing, for extension of time, to which he may consider himself eligible under the Contract, within 14 (fourteen) days of the date of happening of any such events as indicated above failing which the same shall not be considered or taken into account for any purpose whatsoever.

Provided further that no monetary claims shall be admissible to the Contractor for such extension of Time for Completion except for reimbursement of cost of extension of bank guarantee for security deposit and insurance policy(ies).

- 39.3 In any such case as may have arisen due to any of the events, as aforesaid, and which shall be brought out by the Contractor in writing, the Engineer-in-Charge may give a fair and reasonable extension of Time for Completion, after taking into consideration the nature of the work delayed and practicability of its execution during the period of extension.

Such extensions, if admissible, shall be communicated to the Contractor by the Engineer-in-Charge in writing.

Provided that Engineer- in – charge is not bound to make any determination unless the Contractor has;

- a) within 14 days after such event has first arisen notified the Engineer and
- b) within 28 days or such other reasonable time as may be agreed by the Engineer – in – charge detailed particulars of any extension of Time for Completion to which the Contractor may consider himself entitled.

#### **CLAUSE-40: COMPENSATION FOR DELAY:**

- 40.1 If the Contractor fails to complete the work as a whole as specified in Schedule 'C' before the expiry of the period(s) of completion as stipulated in the aforesaid Schedule, or any extended period under Clause 39 as may be allowed, he shall without prejudice to any other right or remedy of the Employer on account of such default, pay as an ascertained/agreed compensation as stipulated in the aforesaid Schedule 'C' not by way of penalty. However, maximum amount of compensation for delay on account of work as a whole shall not exceed 10% of the Contract Price.

- 40.2 The amount of compensation may be adjusted/withheld/ deducted or set-off against any sum due or payable to the Contractor under this or any other contract with the Employer. The payment or deduction of such damages shall not relieve the Contractor from his obligation to complete the Works or from any other obligations and liabilities under the Contract.

**CLAUSE-41: INSPECTION AND APPROVAL:**

- 41.1 All works embracing more than one process shall be subject to examination and approval at each stage thereof and the Contractor shall give due notice to the Engineer-in-Charge or his authorised representative, when each stage is ready. In default of such notice, the Engineer-in-Charge shall be entitled to appraise the quality and extent thereof and the decision of the Engineer-in-Charge in this regard shall be final and binding.
- 41.2 No work shall be covered or put out of view without the approval of the Engineer-in-Charge or his authorised representative and the Contractor shall afford full opportunity for examination of foundations before permanent work is placed thereon. The Contractor shall give due notice to the Engineer-in-Charge or his authorised representative whenever any such work or foundation is ready for examination and the Engineer-in-charge or his representative shall, without unreasonable delay, unless he considers it unnecessary and advises the Contractor accordingly, examine and measure such work or such foundations. In the event of the failure of the contractor to give such notice, he shall, if required by the Engineer-in-Charge, uncover such work at the Contractor's expense.
- 41.3 The Engineer-in-Charge or his representative shall have powers at any time to inspect and examine any part of the works and Contractor shall give such facilities as may be required for such inspection and examination.
- 41.4 The Contractor shall uncover any part of the Works and/or make opening in or through the same as the Engineer-in-charge may from time to time direct for his verification and shall reinstate and make good such part to the satisfaction of the Engineer-in-Charge. If any such part has been covered up or put out of view after being approved by the Engineer-in-Charge and is subsequently found, on uncovering, to be executed in accordance with the contract, the expenses of uncovering and/or making openings in or through, reinstating and making good the same, shall be borne by the Employer. In any other causes all such expenses shall be borne by the Contractor.

**CLAUSE-42: COMPLETION CERTIFICATE:**

- 42.1 The Works shall be completed to the entire satisfaction of the Engineer-in-Charge and in accordance with the time mentioned in Schedule 'D' and terms and conditions mentioned in clause-39. As soon as the Works under the Contract is completed as a whole, the Contractor shall give notice of such completion to the Engineer-in-Charge. The Engineer-in-Charge, within two week of receipt of such notice, shall inspect the Works and shall satisfy himself that the Work(s) has been completed

in accordance with the provisions of the Contract and then issue to the Contractor a certificate of completion indicating the date of completion except for any minor outstanding works and minor defects which will not substantially affect the use of Works for their intended. Should the Engineer-in-Charge notice that there are major defects in the Works or the Works are not considered to be substantially complete, he shall issue a notice in writing to the Contractor to rectify/replace the defective Works or any part thereof or complete the Works, as the case may be, within such time as may be notified and after the Contractor has complied with as aforesaid and gives notice of completion, the Engineer-in-Charge shall inspect the work and issue the completion certificate in the same manner as aforesaid.

- 42.2 No certificate of completion shall be issued as stipulated under 42.1 above nor Work be considered to be completed unless the Contractor shall have removed from the work site and/or premises all his belongings/temporary arrangements brought/made by him for the purpose of execution of the work and clean the site and/or premises in all respects and made the whole of the site and or premises fit for immediate occupation/use to the satisfaction of the Engineer-in-Charge. If the Contractor fails to comply with the above mentioned requirements on or before the date of completion of the Work, the Engineer-in-Charge, may, as he thinks fit and at the risk and cost of the Contractor, fulfill such requirements and remove/dispose off the Contractor's belongings/temporary arrangements, as aforesaid, and the Contractor shall have no claim in this respect except for any sum realized by the sale of Contractor's belongings/temporary arrangements less the cost of fulfilling the said requirements and any other amount that may be due from the Contractor. Should the expenditure on the aforesaid account exceed the amount realised by sale of such Contractor's belongings/temporary arrangements than the Contractor shall on demand, pay the amount of such excess expenditure.

**CLAUSE-43: DEFECTS LIABILITY PERIOD:**

- 43.1 The "Defect Liability Period" for the entire work under the Contract is 12 months from the certified date of completion as per clause 42.
- 43.2 If during the Defects Liability Period any portion of the Works is found defective or deficient in any manner and is repaired/rectified/replaced pursuant to the defects liability provisions of the Contract, the Defects Liability Period for such portion of the Works, shall, notwithstanding anything to contrary contained herein, be operative for a further period of 6 months from the date of such repair/rectification/ replacement but shall not in any case be operative for more than 18 months from the date of completion stated in the Completion Certificate.

**CLAUSE-44: MEASUREMENTS:**

- 44.1 The Engineer-in-Charge shall except as otherwise stated ascertain and determine by measurement, the value of work done in accordance with the Contract.

- 44.2 Notwithstanding any provision in the relevant standard method of measurement or any general or local custom, measurement of work done under the Contract shall be taken in accordance with the procedure set forth in the Technical Specifications or Bill of Quantities under the Contract. In the case of items of work, which are not covered by the Technical Specifications or Bill of Quantities, measurement shall be taken in accordance with the relevant standard methods of measurements laid down by the Bureau of Indian Standards (BIS).
- 44.3 All items having a financial value shall be entered in measurement book, level book, etc., prescribed by the Employer so that a complete record is maintained of all work performed under the Contract.
- 44.4 Measurement shall be taken jointly by the Engineer-in-charge or his representative and by the Contractor or his authorised representative.
- 44.5 Before taking measurement of any works, the Engineer-in-charge or his representative, shall give a reasonable notice to the Contractor. If the Contractor fails to attend or send an authorised representative for measurement after such a notice or fails to countersign or to record the objection within a week from the date of taking the measurements, then in that event the measurements taken by the Engineer-in-charge shall be taken to be correct and final measurements of such work.
- 44.6 The Contractor shall, without extra charge, provide assistance with every appliance, labour and other appliances (theodolite, level etc.) and things necessary for measurement.
- 44.7 Measurement shall be signed and dated by both parties on the Site on completion of measurement. If the Contractor objects to any of the measurements recorded by the representative of the Engineer-in-Charge a note to that effect shall be made in the measurement book against the item objected to and such note shall be signed and dated by both parties engaged in taking the measurement. The decision of the Engineer-in-Charge on any such dispute or difference or interpretation shall be final and binding on the contractor in respect of all contract items, substituted items, extra items and deviations. Provided that items of work which are not susceptible to measurement at the later date must be measured jointly and signed accordingly by both the parties at the time of execution of such items.

**CLAUSE-45: PAYMENT ON ACCOUNT:**

- 45.1 Running Account bills shall be submitted by the Contractor monthly on or before the date fixed by the Engineer-in-Charge for the work executed. The Engineer-in-Charge shall then verify the bills with reference to the measurements recorded in the measurement book(s).
- 45.2 Payment on account for amount admissible shall be made on the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment for the work executed, after deducting therefrom the amounts already paid, the security deposit and such other amounts as may be withheld/deductable or recoverable in terms of the Contract.

45.3 Payment of the Contractor's bills shall be made by the Employer within 28 days from the date of submission of the bill subject to the acceptance of the Engineer-in- charge.

In case of any disagreement between EIC and Contractor on any part of the bill, such part shall be severed from the rest and payment of such part shall be withheld by the EIC and payment of balance admissible part of Contractor's bill shall be processed and released within specified 28 days. The clarification on disagreed part, if any, required on any item of Contractor's bill shall be sought by the EIC within 21 days of bill submission and except in exceptional circumstances, these clarification shall be sought in one go. Similarly, the Contractor shall also be required to submit the clarification sought within next 21 days.

45.4 Payments due to the Contractor shall be made by crossed Cheque/RTGS/NEFT by the Engineer-in-Charge or his representative. Such cheques shall be issued direct to the Contractor on furnishing a stamped receipt for the amount of the cheque or to his constituted attorney duly authorised to receive such payments from the Engineer-in- charge.

45.5 Any Running Account bills given relating to work done or materials delivered, may be modified or corrected by any subsequent Running Account bills or by the final bill. No certificate(s) of the Engineer-in-Charge supporting an Running Account bill shall itself be conclusive evidence that any work or materials to which it relates is/are in accordance with the Contract.

45.6 Should there be a request for extension of Time for Completion, pending its consideration, interim payments shall continue to be made as provided herein.

45.7 After receipt of clarifications as per Clause 45.3 / modifications furnished by contractor as per Clause 45.3 and acceptance thereof by the Employer, payment in respect of such withheld items shall be released to the contractor through next Running Account bill.

45.8 Deleted.

45.9 The Contractor shall be paid 75% (seventy five percent) of the admissible Running Account bill amount, after due recoveries within 10 days of submission of Running Account bill. The balance due amount under the Running Account bill shall be paid to the Contractor within 28 days of submission of bills after due certification by the Engineer-in-charge.

45.10 Omissions on the part of the Engineer to pay the amount due upon measurement or otherwise shall neither vitiate nor make the contract void. Further, no claim for interest or damages will be entertained or payable by the Employer upon

- i). any Bank Guarantee or
- ii). payments in arrears or
- iii). any balance which may become due on final settlement/re-conciliation of the account or
- iv). withheld by the Employer owing to any dispute or difference between the parties.

#### **45.11 DELAYED PAYMENT:**

All the undisputed payments for the works performed by Contractor under the Contract shall be released within twenty eight days from the receipt of invoice/bills from the Contractor complete in all respect.

In case, payment are not released as mentioned above, the Employer shall pay the principal amount plus simple interest from the date immediately following the date agreed upon @ 6% p.a.

#### **45.12 Deleted**

#### **CLAUSE-46: Deleted**

#### **CLAUSE-47: TAXES, DUTIES AND LEVIES ETC:**

47.1 All existing customs duty, Goods and Service Tax (GST), business taxes, Income tax or any other applicable indirect / direct tax or duty or levy such as royalty, terminal tax, cess that may be levied in accordance with laws and regulation in force as on 28 days before the last date of submission of price bid that the Contractor has to pay on the Contractor's Equipment, Plant, materials and supplies (permanent, temporary and consumables) acquired for the purpose of the Contract and for the services performed under the Contract shall be payable by the Contractor, and the Employer shall not entertain any claim in this regard. The Contract unit rates shall be deemed to be inclusive of all such taxes, duties, levies etc. including those assessed on the Employer. The Contract unit rates shall also be inclusive of GST liability of the Employer on works (service recipient), if any, which shall be recovered from the Contractor. The Contract unit rates shall also be after taking into account the Input Tax Credit (ITC) and other benefits. Any statutory variation in the rate of aforesaid taxes if any, during the currency of the Contract including extension thereof shall be to the account of Employer provided the amount thus claimed is not paid under price variation clause 46.

Changes in the advance tax rates of Income Tax and any other direct tax payable to appropriate authorities shall not be construed as a change in the rate(s) of taxes and will not be subject to adjustment.

47.2 However, if a new tax or duty or levy, other than those existing on 28 days before the last date of submission of price bid i.e.----- (date to be entered in Agreement) is imposed in India under a statute or law during the currency of the Contract and the Contractor becomes legally liable thereunder to and actually pays the same for bonafide use on the Works contracted, then the Contractor shall immediately inform the Engineer-in-Charge in this regard. The Employer will reimburse the same to the Contractor on production of satisfactory proof of payment, provided that the amount thus claimed is not paid under Price variation clause 46 of General Conditions of

the Contract. Provided always that in the event of variation in the rates of royalty charges/fresh levy of royalty on materials, the same shall be reimbursed to or recovered from Contractor upon submission of satisfactory documentary evidence of having made the payment at revised rates.

- 47.3 The Contractor's staff and labour will be liable to pay personal income taxes in respect of such of their salaries and wages as are chargeable under the laws and regulations for the time being in force, and the Contractor shall perform such duties in regard to such deductions thereof as may be imposed on him by such laws and regulations.
- 47.4 Provided further that, the Contractor shall not be entitled for reimbursement under Sub-clause 47.1 & 47.2 if the changes in the existing tax or duty or levy or imposition of new tax or duty or levy as mentioned in Sub-clause 47.1 & 47.2 pertains to indirect transactions between Contractor and any third party (e.g. Tax(es) on Insurance Premium ).
- 47.5 Notwithstanding anything contained elsewhere in the contract, the Employer shall deduct at source from the payment due to the Contractor, the taxes as required to be deducted under applicable Tax Act or Rule. The amounts so deducted shall be deposited by the Engineer-in-charge with the Tax authorities as per Law. Immediately thereafter, the Engineer-in-charge shall inform the Contractor of the detailed calculations of such deductions and shall provide the Contractor with the corresponding receipts from the tax authorities. It is for the Contractor to deal with the Tax authorities directly in respect of any claim or refund relating to the above deductions and the Employer shall not be liable or responsible for any claims or payments or reimbursement in this regard.
- 47.6 Invoices and other documents submitted by contractor for payment under Interim Payment Certificate/Final Payment Certificate, or any other payment under the contract shall be in accordance with the GST Law.
- 47.7 The contractor shall furnish a certificate along with Interim Payment Certificate/Final Payment Certificate that GST payable by him has been deposited / will be deposited to the Govt. Treasury.

**CLAUSE-48 : PAYMENT OF FINAL BILL:**

The final bill shall be submitted by the Contractor within one month of the date fixed for completion of the Work or of the date the Certificate of Completion furnished by the Engineer-in-Charge. No further claim in this regard unless as specified herein under shall be entertained. Payment shall be made within 03 months, of the submission of Final bill. The clarification, if any, required on any item of final bill, shall be sought by the EIC within a period of 45 days. The Contractor shall be required to submit his clarifications within next 45 days. If there shall be any dispute about any item or items of the work then the undisputed item or items only shall be paid within the said period of three months. The Contractor shall submit a list of the disputed items within thirty days from the disallowance thereof and if he fails to do so, his claim shall be deemed to have been fully waived and absolutely extinguished. Provided further the Employer shall not be liable to the Contractor for any matter or thing arising out of or in connection with the Contract

or execution of the Works, unless the Contractor shall have included a claim in respect thereof in his Final Bill.

The contractor with RA bill / Final Bill shall submit a certificate for compliance of provisions of contract in the format prescribed at Schedule-D.

**CLAUSE-49: OVER PAYMENT AND UNDER PAYMENT:**

- 49.1 Whenever any claim whatsoever for the payment of a sum of money to the Employer arises out of or under this Contract against the Contractor, the same may be deducted by the Employer from any sum then due or which at any time thereafter may become due to the Contractor under this Contract and failing that under any other contract with the Employer or from any other sum whatsoever due to the Contractor from the Employer or from his security deposit, or he shall pay the claim on demand.
- 49.2 The Employer reserve the right to carry out post- payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc. The Employer further reserves the right to enforce recovery of any overpayment when detected, notwithstanding the fact that the amount of the final bill may be included by one of the parties as an item of dispute before an arbitrator appointed under clause 55 of this Contract and notwithstanding the fact that the amount of the final bill figures in the arbitration award.
- 49.3 If as a result of such audit and technical examination any overpayment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the Contract, it shall be recovered by the Employer from the Contractor by any or all of the methods prescribed above, and if any under-payment is discovered, the amount shall be duly paid to the Contractor by the Employer.
- 49.4 Provided that the aforesaid right of the Employer to adjust overpayments against amounts due to the Contractor under any other contract with the Employer shall not extend beyond the period of two years from the date of payment of the final bill or in case the final bill is a MINUS bill, from the date the amount payable by the Contractor under the MINUS final bill is communicated to the Contractor.
- 49.5 Any sum of money due and payable to the Contractor (including the security deposit returnable to him) under the Contract may be withheld or retained by way of lien by the Engineer-in-Charge or Employer against any claim of the Employer or such other person or persons in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with the Engineer-in-Charge or Employer or with such other person or persons.

The sum of money so withheld or retained under this clause by the Engineer-in-Charge or Employer will be kept withheld or retained as such by the Engineer-in- Charge or Employer or till his claim arising out of in the same Contract or any other contract is either mutually settled or determined by the arbitrator under Clause 55 hereof, or by the competent court.

**CLAUSE-50 : TRAINING OF APPRENTICES:**

The Contractor shall, during the currency of the Contract, engage and also ensure engagement by his sub- contractor and other employed by the Contractor in connection with the Works, such number of apprentices and in such categories for such periods as may be required under the Apprenticeship Act 1961 as amended in 2014 and he shall be responsible for all obligations of the Employer under the aforesaid Act, including the liability to make payment to Apprentices as required under the Act.

**CLAUSE-51 : CONTRACT MATTERS TO BE TREATED AS CONFIDENTIAL:**

- 51.1 All documents, correspondence, decisions and orders concerning the Contract shall be considered as confidential and/or restricted in nature by the Contractor and he shall not divulge or allow access to them by any unauthorised person.
- 51.2 The Contractor shall take necessary steps to ensure that all persons employed on any work in connection with this Contract have noted that the Indian Official Secret Act, 1923 (XIX of 1923) applies to them and shall continue so to apply even after the execution of such Works under the Contract.

**CLAUSE-52 : LAWS GOVERNING THE CONTRACT:**

Unless otherwise hereinafter provided, this Contract shall be construed, interpreted and governed by laws of India.

**CLAUSE-53 : PROCEDURE FOR CLAIMS:**

If the Contractor considers himself to be entitled to any extension of the Time for Completion and/or any additional payment, under any Clause of these Conditions or otherwise in connection with the Contract, the Contractor shall give notice to the Engineer, describing the event or circumstance giving rise to the claim. The notice shall be given as soon as practicable, and not later than 15 days after the Contractor became aware, or should have become aware, of the event or circumstance.

If the Contractor fails to give notice of a claim within such period of 15 days, the Time for Completion shall not be extended, the Contractor shall not be entitled to additional payment, and the Employer shall be discharged from all liability in connection with the claim. Otherwise, the following provisions of this Sub-Clause shall apply.

The Contractor shall also submit any other notices which are required by the Contract, and supporting particulars for the claim, all as relevant to such event or circumstance.

The Contractor shall keep such contemporary records as may be necessary to substantiate any claim, either on the Site or at another location acceptable to the Engineer. Without admitting the Employer's liability, the Engineer may, after receiving any notice under this Sub-Clause, monitor

the record-keeping and/or instruct the Contractor to keep further contemporary records. The Contractor shall permit the Engineer to inspect all these records, and shall (if instructed) submit copies to the EIC/Engineer.

Within 90 days after the Contractor became aware (or should have become aware) of the event or circumstance giving rise to the claim or within such other period as may be proposed by the Contractor and approved by the Engineer, the Contractor shall send to the Engineer a fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of time and/or additional payment claimed.

If the event or circumstance giving rise to the claim has a continuing effect:

- a) This fully detailed claim shall be considered as interim.
- b) The Contractor shall send further interim claims at monthly intervals, giving the accumulated delay and/or amount claimed and such further particulars as the Engineer may reasonably require; and
- c) The Contractor shall send a final claim within 15 days after the end of the effects resulting from the event or circumstance or within such other period as may be proposed by the Contractor and approved by the Engineer.

If the Contractor fails to submit the fully detailed claim which includes full supporting particulars of the basis of the claim and of the extension of Time for Completion within such period as specified above, the Time for Completion shall not be extended and the Contractor shall not be entitled to additional payment/claim and the Employer shall be discharged from all liability in connection with the claim.

Within 45 days after receiving all particulars supporting claim or within such other period as may be proposed by the Engineer and approved by the Contractor, the Engineer shall respond with approval or with disapproval and detailed comments on the admissibility of claim. If the Contractor does not receive the approval or disapproval from the Engineer on the admissibility of the Claim within such time, then the claim made by the Contractor will be deemed to have been considered admissible. The detailed evaluation of Claim (if considered admissible) shall be done by the Engineer in due course of time.

Each Payment Certificate shall include such amounts for any claim as have been reasonably substantiated as due under the relevant provision of the Contract. Unless and until the particulars supplied are sufficient to substantiate the whole of the claim under the contract, the Contractor shall only be entitled to payment for such part of the claim as he has been able to substantiate.

Further, the resources (Equipment/Manpower) are solely the Contractor's estimate and the Contractor has committed to deploy the resources to complete the Works within the Time for

Completion. No claims will be entertained on the grounds that there has been less progress than anticipated using these resources. The causes or hindrances would have to be established by the Contractor independently. No payments would be made towards the expenses incurred on deploying the additional resources as such unless expressly agreed by the Employer in writing.

No interest shall be paid by the Employer on the disputed/ claimed amount for the period up to determination and notification of the same to the Contractor by the Engineer.

The Engineer shall proceed in accordance with Sub-Clause to agree or determine (i) the extension (if any) of the Time for Completion (before or after its expiry) in accordance with Sub-Clause 39 [Time for Completion and Extensions] to which the Contractor is entitled under the Contract.

The requirements of this Sub-Clause are in addition to those of any other Sub-Clause which may apply to a claim. If the Contractor fails to comply with this or another Sub-Clause in relation to any claim, any extension of time shall take account of the extent (if any) to which the failure has prevented or prejudiced proper investigation of the claim, unless the claim is excluded under the second paragraph of this Sub-Clause.

**CLAUSE-54: SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE WITHOUT REFERENCE TO ACTUAL LOSS:**

All sums payable by way of compensation to the Employer under any of these conditions shall be considered as reasonable compensation without reference to the actual loss or damage sustained and whether or not damage shall have been sustained.

**CLAUSE -55: SETTLEMENT OF DISPUTES**

**55.1 Amicable Settlement**

55.1.1 If any dispute arises between the Employer and the Contractor arising out of the Contract, whether during the execution of the Works or after their completion and whether before or after the repudiation or after termination of Contract, including any disagreement by either Party with any action, inaction, opinion, instruction, determination, certificate or valuation of the Employer, an attempt shall be made to resolve the matter in dispute amicably.

Any dispute, in respect of which the Employer and the Contractor have failed to reach at an amicable settlement pursuant to GCC Clause 55.1.1, shall be finally settled by reference to Commercial / Competent Court.

55.2: Settlement of commercial disputes between Central Public Sector Enterprises CPSE(s) / Port Trusts *inter se* and also between CPSEs and Government Departments /Organizations (excluding disputes related to Railways, Income Tax, Customs & Excise Departments) - Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD).

In the event of any dispute or difference relating to the interpretation and application of the provisions of commercial contract(s) between Central Public Sector Enterprises (CPSEs)/ Port Trusts inter se and also between CPSEs and Government Department(s)/Organization(s) (excluding disputes related to Railways, Income Tax, Customs & Excise Departments), such dispute or difference shall be taken up by either party for its resolution through AMRCD as mentioned in DPE OM No. 05/0003/2019-FTS-10937 dated 14<sup>th</sup> December, 2022 (copy enclosed) and the decision of AMRCD on the said dispute will be binding on both the parties.

This provision is applicable to disputes with Central PSEs / Port Trusts / Government Department(s) / Organization(s) (excluding disputes related to Railways, Income Tax, Customs & Excise Departments) only.

#### **CLAUSE 56: DEFECTS LIABILITY CERTIFICATE & UNFULFILLED OBLIGATIONS:**

The Contract shall not be considered as completed until a Defects Liability Certificate shall have been signed by the Engineer-in-Charge and delivered to the Contractor, stating the date on which the Contractor shall have completed his obligations to execute and complete the Works and remedy any defects therein to the Engineer-in-Charge's satisfaction. The Defects Liability Certificate shall be given by the Engineer-in-Charge within 28 days after the expiration of the Defects Liability Period.

Notwithstanding the issue of the Defects Liability Certificate the Contractor and the Employer shall remain liable for the fulfillment of any obligation incurred under the provisions of the Contract prior to the issue of the Defects Liability Certificate which remains unperformed at the time such Defects Liability Certificate is issued and, for the purposes of determining the nature and extent of any such obligation, the Contract shall be deemed to remain in force between the parties to the Contract.

#### **CLAUSE 57: ECOLOGICAL BALANCE**

57.1 The Contractor shall be required to ensure that there shall be no indiscriminate felling of trees by him or his labourers or their family members and he will be solely responsible for their acts in this regard. The Contractor shall try to maintain ecological balance by preventing deforestation, water pollution and defacing of natural landscape in the vicinity of work areas. The Contractor shall so conduct his construction operations as to prevent an unnecessary destruction of, scarring or defacing the natural surroundings in the vicinity of the work area. In order to maintain the ecological balance, the Contractor shall specifically observe the following instructions:

- a) Where unnecessary destruction, scarring, damage or defacing may occur as a result of the Contractor's operation, the same shall be repaired, replanted or otherwise corrected at the Contractor's expense. The Contractor will prevent scattering of rocks and other debris

outside the work areas. All work areas shall be smoothed and graded in a manner to conform to the natural appearance of the landscape as directed by the Engineer-in-Charge.

- b) All trees and shrubs, which are not specifically required to be cleared or removed for construction purposes, shall be preserved and shall be protected from any damage that may be caused by the Contractor's construction operation and equipment. The removal of trees or shrubs will be permitted only after prior approval by the Engineer-in-charge. Special care shall be exercised where trees or shrubs are exposed to injuries by construction equipment, blasting, and excavating, dumping, chemical damage or other operation and the Contractor shall adequately protect such trees by use of protective barriers or other methods approved by the Engineer-in-Charge. Trees shall not be used for anchorage.
- c) The Contractor's construction activities shall be performed by methods that will prevent entrance or accidental spillage of solid matter contaminants, debris and other objectionable pollutants and wastage into river. Pollutants and wastes shall be disposed of in a manner and at sites approved by the Engineer in-Charge. The Contractor shall fully comply with Water (Prevention and Control of Pollution) Act, 1974 section -33(A).
- d) In the Conduct of construction activities and operation of equipment, the Contractor shall utilise such practicable methods and devices as are reasonably available to control, prevent and otherwise minimise air pollution. The contractor shall fully comply with Air (Prevention and Control of Pollution) Act, 1981 section -31(A).
- e) Burning of materials resulting from clearing of tree, bush, combustible construction materials and rubbish may be permitted only when atmospheric conditions for burning are considered favourable.
- f) The Contractor shall be required to prevent flowing of debris and muck in to the river. Necessary retaining structures like walls/crates etc shall be constructed for the purpose. The Contractor shall also stabilize the muck fully i.e. consolidation and compaction of the muck shall be carried out in the muck dumpsites before handing it over to the Employer at the end of construction period.
- g) All the equipment which are likely to generate high noise levels are to be fully equipped (with noise reduction measures) to meet the ambient noise control standards.

57.2 Separate payment will not be admissible to the Contractor for complying with the provisions of this clause except the protection work as specially provided for in BOQ. All other costs shall be deemed to have been included in the items mentioned in the Bill of Quantities. If any provision(s) is not complied with, within a reasonable time even after issue of a notice in this respect, the necessary operations would be carried out by the Engineer-in-charge at the cost of the Contractor.

**CLAUSE 58 : GENERAL:**

Save and except as expressly provided elsewhere in this Contract all costs, expenses, charges and liabilities for the completion of the Works in accordance with the Contract and/or for the due and faithful performance and/or the fulfillment of all of the Contractor's obligations under the Contract including furnishing of bank guarantees / Insurance Surety Bonds to the Employer pursuant to the Contract shall be to the account of and be borne by the Contractor and shall be deemed to be included in the unit rates provided for in the Bill of Quantities and the Employer shall not be liable in any manner whatsoever therefore.

Whenever any claim whatsoever for the payment of a sum of money to the Employer arises out of or under this contract against the Contractor, the same may be deducted by the Employer from any sum then due or which at any time thereafter may become due to the Contractor under this Contract and failing, that under any other contract between the Employer and the Contractor or from any other sum whatsoever due to the Contractor from the Employer or from his Security Deposit or he shall pay the claim on demand.

**Clause 59: Deleted**

## HINDRANCE REGISTER

Annexure-I

Refer Clause 39.2 of GCC)

NAME OF PROJECT: \_\_\_\_\_

1. Name of Work: \_\_\_\_\_

2. Agreement No. \_\_\_\_\_

3. Executing Agency: \_\_\_\_\_

Sl. No.	Nature /Reason of Hindrance	Item/Component of works which could not be executed on account of this Hindrance	Date of Start of Hindrance	Date of removal of Hindrance	Overlapping period (if any)	Net Hindrance in days	Signature of Engineer's Representative	Signature of Contractor	Remarks
1	2	3	4	5	6	7	8	9	10

### Schedules

<b>Schedule-A</b>	<b>Schedule of Quantities and Prices</b>
<b>Schedule-B</b>	<b>Deleted</b>
<b>Schedule-C</b>	<b>Compensation for delay</b>
<b>Schedule-D</b>	<b>Schedule for chargeable interest rates against advances, completion time, defect liability period, percentages of various components for price variation/adjustment</b>
<b>Schedule-E</b>	<b>Deleted</b>
<b>Schedule-F</b>	<b>Deleted</b>
<b>Schedule-G</b>	<b>Deleted</b>

**GENERAL SUMMARY**

**ABSTRACT**

**SCHEDULE OF QUANTITIES AND PRICES (BILL OF QUANTITIES)**

Separate '**Schedule of Quantities and Price (Bill of Quantities)**' attached as **Section-VII** of Bid document and shall be filled by the Bidder in E-Tendering mode.

**Signature of Bidder**

**SCHEDULE-B**

Deleted

**SCHEDULE-C****SCHEDULE FOR ACHIEVEMENT OF WORK AND COMPENSATION FOR DELAY**

(Refer Clause-40 of General Conditions of Contract and Schedule-E)

<b>Sl. No.</b>	<b>Description Mile Stones</b>	<b>Schedule completion period from the date of issue of Letter of Acceptance.</b>	<b>Compensation for delay</b>
1.	Completion of works as a whole	02 (Two) months	0.035% of Contract Price per day of Delay subject to maximum 10% (Ten Percent) of Contract Price.

**SCHEDULE - D**

Schedule for chargeable interest rates against advances, completion time, defect liability period, percentages of various components for price variation/adjustment

S.NO.	CLAUSE No.	DESCRIPTION	STIPULATION
1	3.2	Performance Security Deposit	2% of Contract Price
2	3.3	Retention Money	3% of Contract Price
3	13.1.1	Mobilisation Advance Limit	Deleted
4	13.1.1(i)	Simple interest per Annum on Mobilization Advance	Deleted
5	13.1.1(ii)	Initial limit	Deleted
6	13.1.2	Advance for Construction Equipment limited to	Deleted
7	13.1.2(i)	Simple interest per Annum on sum advanced for purchase of new equipment	Not applicable Deleted
8	18.2, (iii) GCC	Contractor's Overheads, Profits, and Supervision Charges	15 Percent
9	34.4(a)	An addition to Contract Price to account for the materials which is to be issued to the Contractor free of cost by the Employer	Contractor shall Avail Group Personal Accident Coverage Policy covering all personnel employed by the contractor for execution of Works complying requirement of Employee compensation Act 1923 as amended time to time.
10	34.4(b)	Deductibles: 5% of each loss subject to minimum of Rs. ....	Deleted
11	34.9 GCC	Public Liability Limits plus Property Liability Limits not exceeding	10% of Contract Price In case, the total liability exceeds the limit of 10% of contract price, the minimum liability as mentioned under Clause

			34.9(i) & 34.9(ii) shall be applicable.
12	39.1	Time allowed for execution of the Work as a whole	02 (Two) months
13	43	Defects Liability Period	12 months
14	45.7	Interest Rate for Delayed Payment	6% per Annum
15	45.8	Materials intended for the Works	Deleted
16	45.12	Certificate for compliance of BRSR Policy	Deleted
17	46.1	Price Adjustment/Variation	Deleted
18	48	i) Certificate for compliance of Provisions of Contract,	Placed at Annexure-III

**Certificate for compliance of Provisions of Contract**

[Certificate to be submitted by Contractors on their letter head along with each and every bill (whether running or final)]

"Name of the work: .....

RA Bill No. .... (Period .....) / Final Bill

It is certified that;

1. We, M/s .....(Name of Contractor) and M/s ..... (Name of approved Sub-Contractor(s), if applicable) have complied with all the provisions contained in the contract agreement of the subject work.
2. The work is being / has been carried out as per provisions of the Contract.

**Authorized Representative of Contractor**

**SCHEDULE-E**

**Deleted**

## **CONSTRUCTION PLANT, EQUIPMENT & MACHINERY AND ITS PLANNING SCHEDULE**

**Deleted**

**Deleted**

## **SECTION V**

### **FORMS**

<b>Form-1:</b>	<b>Agreement Form</b>
<b>Form-2:</b>	<b>Bank Guarantee format for Earnest Money.</b>
<b>Form-3:</b>	<b>Format of Insurance Surety Bond for Earnest Money.</b>
<b>Form-4:</b>	<b>Bank Guarantee format for Performance Security.</b>
<b>Form-5:</b>	<b>Format of Insurance Surety Bond for Performance Security.</b>
<b>Form-6:</b>	<b>Deleted.</b>
<b>Form-7:</b>	<b>Bank Guarantee format for Release/Payment of Retention Money.</b>
<b>Form-8:</b>	<b>ECS Form</b>
<b>Form-9</b>	<b>Deleted</b>

## FORM-1

### AGREEMENT FORM

(To be executed on non-judicial Stamp paper of appropriate value)

#### AGREEMENT

This agreement is made on \_\_\_\_\_ day of \_\_\_\_\_ Two Thousand ----- between the NHPC LIMITED, registered under the Laws of India and having its registered Office at NHPC Office Complex, Sector-33, Faridabad (Haryana)-121 003. (hereinafter referred to as the 'Owner' which expression shall unless repugnant to the context or meaning thereof, called the 'Employer' which expression shall unless repugnant to the subject or context include its administrators, successors and assigns) of the one part and M/s \_\_\_\_\_ registered under the \_\_\_\_\_ Act and having its principal / registered office at \_\_\_\_\_ (herein after called "the Contractor" which expression shall unless repugnant to the context or meaning thereof, include its successors and permitted assigns) of the other part.

WHEREAS the Employer is desirous that certain Works should be executed by the Contractor, viz: ..... and has accepted the Bid of the Contractor for the execution and completion of such Works and the remedying of any defects therein at the cost of RS. ----- (Rupees-----).

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expressions shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement, viz:
  - a) the Agreement
  - b) the Letter of Acceptance issued by Employer;
  - c) the Special Conditions of Contract (SCC);
  - d) the General Conditions of Contract (GCC);
  - e) the Technical Specifications;
  - f) the Schedule of Quantities and Price(Bill of Quantities);
  - g) the Tender Drawings;
  - h) the Information for Bidder(s)

- i) the Safety Manual.
  - j) any other document forming part of the Contract
3. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy the defects therein in conformity in all respect in accordance with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the works and remedying of defects therein the Contract Price or such other sum as may become payable under the provisions of the Contract at the time and in the manner prescribed by the Contract.

In Witness whereof the parties hereto have caused this Agreement to be executed the day and year first before written, at ----- (name of place).

The Common Seal of \_\_\_\_\_ was hereunto affixed in the presence of:

For and on behalf of the Contractor

For and on behalf of NHPC Limited

Signature-----

Signature-----

(Designation)-----

(Designation) -----

Place:

Place:

Witnessed by:

Witnessed by:

Name & Address

Name & Address

**Bank Guarantee Format for Earnest Money**

(To be executed on Non-Judicial Stamp Paper of Appropriate value)

Date: \_\_\_\_\_

(Name of Contract)

To: (Name and address of Employer)

WHEREAS (name of Bidder) (hereinafter called "the Bidder") has submitted its Bid dated (date of bid) for the performance of the above named Contract (hereinafter called "the Bid")

KNOW ALL PERSONS by these present that We (name of Bank) of (address of bank) (hereinafter called "the Bank"), are bound unto NHPC Limited (a Govt. of India Navratna Enterprises) (hereinafter called "the Employer") for the sum of: (amount), for which payment well and truly to be made to the said Employer, the Bank binds itself, its successors and assigns by these presents.

THE CONDITIONS of this obligation are as follows:

1. If the Bidder (a) withdraws or modifies its Bid during the period of bid validity, or (b) adopts corrupt or collusive or coercive or fraudulent practices or defaults under Integrity Pact.
2. If the Bidder, having been notified of the acceptance of its Bid by the Employer during the period of bid validity.
  - a) fails or refuses to sign the Contract Agreement when required, or
  - b) fails or refuses to submit the performance security in accordance with the Tender Documents.

We undertake to pay to the Employer up to the above amount upon receipt of its first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer will mention that the amount claimed by it is due, owing to the occurrence of one

or both of the two above-named CONDITIONS, and specifying the occurred condition or conditions.

The Bank declares that this Bank Guarantee is issued by the Bank, utilizing the credit limit of M/s ..... (name of contractor).

This guarantee will remain in force up to and including (date 90 days after the period of bid validity), and any demand in respect thereof must reach the Bank not later than the above date.

For and on behalf of the Bank

---

in the capacity of

---

Common Seal of the Bank with complete address including Tel./fax. Nos.

Staff Authority No. of the officer of the Bank/Signatory

**INSTRUCTIONS FOR EXECUTION OF BANK GUARANTEE FOR EARNEST MONEY DEPOSIT**

1. Bank Guarantee for Earnest Money Deposit should be executed on non-judicial Stamp papers of requisite value in accordance with the stamp Act if applicable to that particular state of Indian Union country of executing Bank, where executed. In case the same is issued by a first class International bank, the law prevalent in the country of execution shall prevail for the purpose of Stamp Duty on the Bank Guarantee. However, in such a case, the Bank Guarantee for Earnest Money Deposit shall be got confirmed by the Bidder through any Indian Scheduled/Nationalized Bank.
2. The executing officers of the Bank Guarantee for Earnest Money/Bid Security shall clearly indicate in (block letters) his name, designation, Power of Attorney No. / Signing Power No. as well as telephone/ fax numbers with full correspondence address of the issuing Guarantee etc.
3. Each page of the Bank guarantee for Earnest Money Deposit shall be duly signed/initialed by the executing officers and the last page shall be signed in full, indicating the particulars as aforesaid (sub-para 2) under the seal of the Bank.

4. Stamp paper shall be purchased in the name of Bank issuing the Bank Guarantee, after the date 'Notice Inviting Tender', not more than six (6) months prior to execution/ issuance of the Bank Guarantee. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. The issuing Bank shall be requested independently for verification/confirmation of the Bank Guarantee issued, non-confirmation of which may lead to rejection of 'Bid Security'.
5. Irrevocable, valid and fully enforceable Bank Guarantee in favor of the employer (Name of Employer) issued by any scheduled bank approved by the Reserve bank of India which is acceptable to the Employer. The Bank Guarantee issued by a Foreign Bank shall be routed through the corresponding branch of such scheduled foreign banks in India or any scheduled Bank, acceptable to the employer.
6. Bank Guarantee for Bid security in original shall be submitted along with the Bid. However, the issuing Bank shall submit an unstamped duplicate copy of Bank Guarantee directly by registered post (A.D.) to the Employer (authority inviting tenders) with a forwarding letter.

**FORM-3**

**Format of Insurance Surety Bond for Earnest Money Deposit**

(To be executed on Non-Judicial Stamp Paper of Appropriate value)

Insurance Surety Bond No.....

Date: \_\_\_\_\_

(Name of Contract)

To: (Name and address of Employer)

WHEREAS (name of Bidder) (hereinafter called "the Bidder") has submitted its Bid dated (date of bid) for the performance of the above named Contract (hereinafter called "the Bid")

KNOW ALL PERSONS by these present that We ..... (name of Insurance Company) of ..... (address of Insurance Company) (hereinafter called "the Surety"), are bound unto NHPC Limited (a Govt. of India Navratna Enterprises) (hereinafter called "the Employer") for the sum of ..... (amount), for which payment well and truly to be made to the said Employer, the Surety binds itself, its successors and assigns by these presents.

THE CONDITIONS of this obligation are as follows:

1. If the Bidder (a) withdraws or modifies its Bid during the period of bid validity, or (b) adopts corrupt or collusive or coercive or fraudulent practices or defaults under Integrity Pact.
2. If the Bidder, having been notified of the acceptance of its Bid by the Employer during the period of bid validity.
  - a. fails or refuses to sign the Contract Agreement when required, or
  - b. fails or refuses to submit the performance security in accordance with the Tender Documents.

We undertake to pay to the Employer up to the above amount upon receipt of its first written demand, without the Employer having to substantiate its demand, provided that in its demand the Employer will mention that the amount claimed by it is due, owing to the occurrence of one or both of the two above-named CONDITIONS, and specifying the occurred condition or conditions.

The Surety declares that this Insurance Surety Bond is issued by the ..... (name of Insurance Company) as per the applicable rules and regulations of Insurance Regulatory Development Authority of India (IRDAI).

This Insurance Surety Bond will remain in force up to and including (date 90 days after the period of bid validity), and any demand in respect thereof must reach the Surety not later than the above date.

For and on behalf of the Insurance Company

---

in the capacity of

---

Common Seal of the Insurance Company with complete address including Tel. Nos. / e-Mail Id.  
Staff Authority No. of the officer of the Insurance Company /Signatory

**INSTRUCTIONS FOR EXECUTION OF INSURANCE SURETY BOND FOR EARNST MONEY DEPOSIT**

1. Insurance Surety Bond for Earnest Money Deposit should be executed on non-judicial Stamp papers of requisite value in accordance with the stamp Act if applicable to that particular state of Indian Union country of executing Insurance Company, where executed. In case the same is issued by an International Insurance Company (it should be registered under Insurance Act 1938 or as amended from time to time and approved by the Insurance Regulatory Development Authority of India (IRDAI)) the law prevalent in the country of execution shall prevail for the purpose of Stamp Duty on the Insurance Surety Bond. However, in such a case, the Insurance Surety Bond for Earnest Money Deposit shall be got confirmed by the Bidder through any Indian Scheduled/Nationalized Insurance Company.
2. The executing officers of the Insurance Surety Bond for Earnest Money/Bid Security shall clearly indicate in (block letters) his name, designation, Power of Attorney No. / Signing Power No. as well as telephone/ fax numbers with full correspondence address of the issuing Guarantee etc.
3. Each page of the Insurance Surety Bond for Earnest Money Deposit shall be duly signed/initialed by the executing officers and the last page shall be signed in full, indicating the particulars as aforesaid (sub-para 2) under the seal of the Insurance Company.
4. Stamp paper shall be purchased in the name of Insurance Company issuing the Insurance Surety Bond, after the date 'Notice Inviting Tender', not more than six (6) months prior to execution/ issuance of the Insurance Surety Bond. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. The issuing Insurance Company shall

be requested independently for verification/confirmation of the Insurance Surety Bond issued, non-confirmation of which may lead to rejection of 'Insurance Surety Bond'.

6. Irrevocable, valid and fully enforceable Insurance Surety Bond in favor of the Employer (Name of Employer) issued by any Insurance Company registered under Insurance Act 1938 or as amended from time to time and approved by the Insurance Regulatory Development Authority of India (IRDAI) in Indian currency (INR) only is acceptable to the Employer.
6. Insurance Surety Bond for Bid security in original shall be submitted along with the Bid. However, the issuing Insurance Company shall submit an unstamped duplicate copy of Insurance Surety Bond directly by registered post (A.D.) to the Employer (authority inviting tenders) with a forwarding letter.

**FORM-4**

**BANK GUARANTEE FORMAT FOR PERFORMANCE SECURITY**

(To be executed on Non-Judicial Stamp Paper of Appropriate value)

Bank Guarantee No.....

Date.....

To,

*[Employer's Name & Address]*

Dear Sirs,

In consideration of the ... *[Employer's Name]*..... (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s .....*[Contractor's Name]*..... with its Registered/Head Office at ..... (hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Employer's Letter of Acceptance No..... dated..... and the same having been acknowledged by the contractor, for -----*[Contract sum in figures and words]* for .....*[ Name of the work]* and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to .....(\*).....of the said value of the aforesaid work under the Contract to the Employer.

We .....*[Name & Address of the Bank]*.....having its Head Office at.....(hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all monies payable by the Contractor to the extent of .....(\*)..... as aforesaid at any time upto .....(@)..... *[days/month/year]* without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the Bank shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Bank undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantees herein contained shall continue to be enforceable till the Employer discharges this guarantee or till .....(+ )..... *[days/month/year]* whichever is earlier.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Bank under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Bank shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving the Bank.

The Bank declares that this Bank Guarantee is issued by the Bank, utilizing the credit limit of M/s .....(name of contractor) and also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Employer may have in relation to the Contractor's liabilities.

- i) Our liability under this Bank Guarantee shall not exceed \_\_\_\_\_(\*)\_\_\_\_\_.
- ii) This Bank Guarantee shall be valid upto \_\_\_\_\_(+ )\_\_\_\_\_.
- iii) We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only and only if Employer serves upon Bank a written claim or demand on or before \_\_\_\_\_(@)\_\_\_\_\_

Dated this .....day of .....20\_.....at.....

WITNESS

.....

(Signature).....

(Signature)

.....

(Name)

(Name).....

.....

.....

(Official Address)

(Designation with Bank Stamp)/with staff  
Authority no.

Complete Address of the Bank with Tele-Fax

**Notes: 1.** (\*) This sum shall be two percent (2%) of the Contract Price denominated in the types and proportions of currencies.

(@) This date will be Ninety (90) days beyond the issue of Defects liability Certificate as specified in the Contract.

(+) This date will be the date of issue of Defects Liability Certificate.

2. Bank Guarantee should be executed on appropriate stamp paper of requisite value, such stamp paper should be purchased in the name of Issuing Bank, not more than six (6) months prior to execution / issuance of Bank Guarantee. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. Bank guarantee should contain rubber stamp of the authorized signatory of the bank indicating the name, designation and signature/ power of attorney number as well as telephone/ fax numbers with full correspondence address of the Bank.

In case the same is issued by a first class International Bank, the law prevalent in the country of execution shall prevail for the purpose of Stamp Duty on the Bank Guarantee. However, in such a case, the bank Guarantee shall be got confirmed through any Indian Scheduled/Nationalized Bank.

3. Bank Guarantee is required to be submitted directly to the Employer by the issuing bank (on behalf of Contractor) under registered post (A.D.). The Contractor can submit an advance copy of Bank Guarantee to the Engineer.
4. The issuing bank shall write the name of bank's controlling branch/ Head Office along with contact details like telephone/ fax and full correspondence address in order to get the confirmation of BG from that branch/ Head office, if so required.

**FORM-5**

**FORMAT OF INSURANCE SURETY BOND FOR PERFORMANCE SECURITY**

(To be executed on Non-Judicial Stamp Paper of Appropriate value)

Insurance Surety Bond No.....

Date.....

To,

*[Employer's Name & Address]*

Dear Sirs,

In consideration of the ... *[Employer's Name]*..... (hereinafter referred to as the 'Employer' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) having awarded to M/s .....*[Contractor's Name]*..... with its Registered/Head Office at ..... (hereinafter referred to as the 'Contractor', which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns), a Contract by issue of Employer's Letter of Acceptance No..... dated..... and the same having been acknowledged by the contractor, for -----*[Contract sum in figures and words]* for .....*[ Name of the work]* and the Contractor having agreed to provide a Contract Performance Guarantee for the faithful performance of the entire Contract equivalent to .....(\*).....of the said value of the aforesaid work under the Contract to the Employer.

We .....*[Name & Address of the Insurance Company]*.....having its Head Office at.....(hereinafter referred to as the 'Surety, which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby guarantee and undertake to pay the Employer, on demand any and all monies payable by the Contractor to the extent of .....(\*)..... as aforesaid at any time upto .....(@)..... *[days/month/year]* without any demur, reservation, contest, recourse or protest and/or without any reference to the Contractor. Any such demand made by the Employer on the Insurance Company shall be conclusive and binding notwithstanding any difference between the Employer and the Contractor or any dispute pending before any Court, Tribunal, Arbitrator or any other authority. The Surety undertakes not to revoke this guarantee during its currency without previous consent of the Employer and further agrees that the guarantees herein contained shall continue to be enforceable till the Employer discharges this guarantee or till .....(+ )..... *[days/month/year]* whichever is earlier.

The Employer shall have the fullest liberty, without affecting in any way the liability of the Insurance Company under this guarantee, from time to time to extend the time for performance of the Contract by the Contractor. The Employer shall have the fullest liberty, without affecting this guarantee, to postpone from time to time the exercise of any powers vested in them or of any right which they might have against the Contractor, and to exercise the same at any time in any manner, and either to enforce or to forbear to enforce any covenants, contained or implied, in the Contract between the Employer and the Contractor or any other course or remedy or security available to the Employer. The Insurance Company shall not be released of its obligations under these presents by any exercise by the Employer of its liberty with reference to the matters aforesaid or any of them or by reason of any other act or forbearance or other acts of omission or commission on the part of the Employer or any other indulgence shown by the Employer or by any other matter or thing whatsoever which under the law would, but for this provision have the effect of relieving the Insurance Company.

The Surety declares that this Insurance Surety Bond is issued by the .....(Name of Insurance Company)as per the applicable rules and regulations of Insurance Regulatory Development Authority of India (IRDAI) and also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Insurance Company as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Employer may have in relation to the Contractor's liabilities.

- i) Our liability under this Insurance Surety Bond shall not exceed \_\_\_\_\_(\*)\_\_\_\_\_.
- iii) This Insurance Surety Bond shall be valid upto \_\_\_\_\_(+ )\_\_\_\_\_.
- iii) We are liable to pay the guaranteed amount or any part thereof under this Insurance Surety Bond only and only if Employer serves upon Surety a written claim or demand on or before \_\_\_\_\_(@)\_\_\_\_\_

Dated this .....day of .....20\_.....at.....

WITNESS

.....	(Signature).....
(Signature)	
.....	
(Name)	(Name).....

.....  
(Official Address)

.....  
(Designation with Stamp of Insurance Company)/with staff Authority no.

Complete Address of the Insurance Company with Telephone No. and e-Mail Id.

**Notes: 1.** (\*) This sum shall be five percent (2%) of the Contract Price denominated in the Indian currency.

(@) This date will be Ninety (90) days beyond the issue of Defects liability Certificate as specified in the Contract.

(+) This date will be the date of issue of Defects Liability Certificate.

2. Insurance Surety Bond should be executed on appropriate stamp paper of requisite value, such stamp paper should be purchased in the name of Issuing Insurance Company, not more than six (6) months prior to execution / issuance of Insurance Surety Bond. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. Insurance Surety Bond should contain rubber stamp of the authorized signatory of the Insurance Company indicating the name, designation and signature/ power of attorney number as well as telephone numbers / e-Mail Id with full correspondence address of the Insurance Company.

In case the same is issued by an International Insurance Company (it should be registered under Insurance Act 1938 or as amended from time to time and approved by the Insurance Regulatory Development Authority of India (IRDAI)), the law prevalent in the country of execution shall prevail for the purpose of Stamp Duty on the Insurance Surety Bond. However, in such a case, the Insurance Surety Bond shall be got confirmed through any Indian Scheduled/Nationalized Insurance Company.

5. Insurance Surety Bond is required to be submitted directly to the Employer by the issuing Insurance Company (on behalf of Contractor) under registered post (A.D.). The Contractor can submit an advance copy of Insurance Surety Bond to the Engineer.
6. The issuing Insurance Company shall write the name of Insurance Company's controlling branch/ Head Office along with contact details like telephone no., e-Mail Id and full correspondence address in order to get the confirmation of Insurance Surety Bond from that branch/ Head office, if so required.

**FORM-6**

**Deleted**

**FORM-7**

**BANK GUARANTEE FORM FOR RELEASE / PAYMENT OF RETENTION MONEY**

(To be executed on Non-Judicial Stamp Paper of Appropriate value)

Bank Guarantee No.....

Date.....

To,

*[Employer's Name & Address]*

1. We.....*[Name and address of the Bank]* ..... having our Registered/Head Office at ..... (hereinafter referred to as the 'Bank', which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators, executors and assigns) do hereby undertake and agree to indemnify and keep indemnified the.....*[Employer's Name]* ..... (hereinafter referred to as "the Employer " which expression shall, unless repugnant to the subject or context, include its administrators, successors and assigns), to the extent of .....*[amount]*..... on behalf of M/s.....*[Contractor's Name]*..... with its Registered/Head Office at ..... (hereinafter referred to as "the Contractor) in lieu of an equal cash amount of Retention Money deposited by the Contractor and/or deducted by the Employer from the bills of the Contractor and which the Employer has agreed to substitute with a bank guarantee as hereunder, under the provisions of Contract No.....dt. ....which the Contractor has entered into with the Employer in connection with the construction of..... (*Name of Work*) at a total cost of..... (*Contract Sum*) (hereinafter called the 'Contract').
2. We, the Bank also do hereby agree to pay unequivocally and unconditionally immediately on demand, in writing, from the Employer, of any amount upto and not exceeding .....*[amount]*..... to the Employer for any purpose or cause or on any account whatsoever under the provisions of the Contract in which respect the decision of the Employer shall be final and binding on us.

3. We, the Bank, further agree that this guarantee shall be valid and binding on us upto and including .....(@).....and shall not be terminable by notice or any change in the constitution of the said Bank or the Contractor or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations made, given conceded, or agreed with or without our knowledge or consent, by or between the parties to the Contract.
  
4. We also undertake not to revoke this guarantee during its currency except with the previous consent, in writing, of the Employer.
  
5. Our liability under this guarantee is restricted to ..... [amount]..... Our guarantee shall remain in force until .....(@) .....
  
6. The Bank declares that this Bank Guarantee is issued by the Bank, utilizing the credit limit of M/s .....(name of contractor) and also agrees that the Employer at its option shall be entitled to enforce this Guarantee against the Bank as a principal debtor, in the first instance without proceeding against the Contractor and notwithstanding any security or other guarantee the Employer may have in relation to the Contractor's liabilities

In the presence of

Witness

For and on behalf of the Bank with Staff Authority No.

.....

Bank's common seal with complete address including  
Tel./fax. Nos.

Dated this.....day of .....20

**Notes:**

1.

(@) This date will be Ninety (90) days beyond the issue of Defects liability Certificate as specified in the Contract.

2. Bank Guarantee should be executed on appropriate stamp paper of requisite value, such stamp paper should be purchased in the name of Issuing Bank, not more than six (6) months prior to execution / issuance of Bank Guarantee. The name of the purchaser should appear at the back side of stamp paper in the Vendors Stamp. Bank guarantee should contain rubber stamp of the authorized signatory of the bank indicating the name, designation and signature/ power of attorney number as well as telephone/ fax numbers with full correspondence address of the Bank.

In case the same is issued by a first class International Bank, the law prevalent in the country of execution shall prevail for the purpose of Stamp Duty on the Bank Guarantee. However, in such a case, the bank Guarantee shall be got confirmed through any Indian Scheduled/Nationalized Bank.

3. Bank Guarantee is required to be submitted directly to the Engineer by the issuing bank (on behalf of Contractor) under registered post (A.D.). The Contractor can submit an advance copy of Bank Guarantee to the Engineer.
4. The issuing bank shall write the name of bank's controlling branch/ Head Office along with contact details like telephone/ fax and full correspondence address in order to get the confirmation of BG from that branch/ Head office, if so required.

**FORM-8****ECS****N.H.P.C. Limited.**

ELECTRONIC CLEARING SERVICE (CREDIT CLEARING)

(PAYMENT TO PARTIES THROUGH CREDIT CLEARING MECHANISM)

No. :

**1. BIDDER'S NAME**

:

Address

:

Phone/Mobile No.

:

**2. PERTICULARS OF BANK ACCOUNT**

:

**A. BANK NAME**

:

**B. BRANCH NAME**

Address

:

Telephone No.

:

**C. IFSC code of the Bank**

:

(For payments through RTGS)

**D. ACCOUNT TYPE**

:

(S.B. Account/Current Account or Cash Credit  
with Code 10/11/13)**E. ACCOUNT NUMBER**

(As appearing on the Cheque Book)

:

I hereby declared that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information, I would not hold the user Company responsible.

Date:

(.....)

Signature of the Bidder

Certified that the particulars furnished above are correct as per our records.

(Bank's Stamp)

(.....)

Signature of the Authorised

Date:

Official from the Bank

**FORM-9**

**INDENTURE FOR SECURED ADVANCES-deleted**

## **SECTION-VI**

### **SPECIAL CONDITIONS OF CONTRACT (SCC)**

## **SPECIAL CONDITIONS OF CONTRACT**

### **1.0 INTRODUCTION**

The following special conditions shall be read in conjunction with the corresponding relevant provisions made in the General Conditions of Contract and in case of any discrepancy or variation or contradiction between them, the provisions made under these Special Conditions of Contract, shall prevail.

1. Scope of Work: The Scope of Work comprises of all Civil Works for “Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad.
2. The contractor shall have to make his own arrangement for housing facilities for their staffs and labourers away from construction site and shall have to transport the labour to and fro between construction site and labour camp at his own cost. No labour huts will be allowed to be constructed in the premises of the colony except a few temporary sheds for chowkidars and storekeepers at project site. Any decision in this regard shall rest with the Engineer-in-charge and the contractor shall have no claim on this account.
3. The cost of keeping the site clean in accordance with this clause including initial and final cleaning to the satisfaction of the Engineer-in-Charge shall be deemed to be included in the prices quoted by the Contractor.
4. The contractor shall prepare an integrated construction programme chart for completion of whole work except day to day maintenance. The programme chart should include the following:-
  - a. Descriptive note explaining sequenced of various activities.
  - b. Network (PERT/CPM/BAR CHART) in MS projects or any approved other programme by the Engineer In Charge.
  - c. Programme for the procurement of materials by the contractor.
  - d. If at any time it appears to the Engineer-in-Charge that the actual progress of the work does not conform to the approved programme referred above, the contractor shall produce a revised programme showing the modifications to the approved programme to ensure completion of the work within the stipulated time for completion.
5. The submission for approval by the Engineer-in-Charge of such programs or the furnishing of such particulars shall not relieve the contractor of any or his duties or responsibilities under the contract. This is without prejudice to the right of the Engineer-in-Charge to take action against contractor as per terms and conditions of the agreement.

6. All the tests as required for maintaining quality of work or as directed by the Engineer in Charge if required either on the field or at outside laboratories approved by Engineer-in Charge relating to the execution of the work and supply of materials by the contractor shall be carried out by contractor at his own cost.
7. In case any material/work is found sub-standard or not confirming to approve make shall be rejected by the Engineer in charge or his representative. The Contractor shall remove the same from the site within 48 hours at his risk and cost.
8. The BOQ shall not be used as basis for ascertaining the materials to be ordered. The Contractor shall use his own resources to access the quantities of materials to be ordered and shall be directly responsible for the same.
9. Water charges: The water for construction shall be supplied by the employer (if required) at a fixed point, on chargeable basis @1% of work done value which shall be deducted from RA Bills.
10. Electricity charges: The Construction power is to be arranged by the contractor. The contractor shall keep acoustic DG Set of adequate capacity. However power for lighting may be provided by the employer on the written request of contractor on chargeable basis @ Rs.15.69 per KWH on actual basis or latest prevailing rated fixed by NHPC.
11. Standard Safety Manual of NHPC shall be applicable for this contract.
12. Work shall be executed as per CPWD specifications.
13. APPROVED MAKES/BRANDS/AGENCIES FOR MATREIALS.

S No	Item Description	Approved make
1	Stainless steel (Grade-304)	JINDAL, SAIL, TATA, JSW

The contractor shall submit to the Engineer-in-charge samples of all materials/ to be used in the Works approval before bringing bulk supplies and before commencing the Works. These approved samples shall be preserved and retained in the custody of the Engineer-in charge as standards of materials till the completion of the Works. The cost of such samples shall borne by the contractor and nothing shall be payable this account.

The tenderer shall quote his rates on the basis of the price of the brand/make mentioned above for item of the works as described in the BOQ & specifications.

**SECTION-VII**

**SCHEDULE-A**

**SCHEDULE OF QUANTITIES AND PRICES  
(BILL OF QUANTITIES)**

Vali

Pri

Hel

**Percentage BoQ**

**Tender Inviting Authority: General Manager (Civil ContractsIV), NHPC Ltd., NHPC Office Complex, Jyoti Sadan, 2nd Floor, Sector-33, Faridabad -121003 Haryana, India**

**Name of Work: Providing and fixing SS 304 gates at Ganga Sadan and NHPC Bhawan entrance, NHPC Residential Complex, Sec-41, Faridabad.**

**Tender Reference No:**

<b>Name of the Bidder/ Bidding Firm / Company :</b>	
---	--

**PRICE SCHEDULE**

**(This BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevent columns, else the bidder is liable to be rejected for this tender. Bidders are allowed to enter the Bidder Name and Values only )**

<b>NUMBER #</b>	<b>TEXT #</b>	<b>NUMBER #</b>	<b>TEXT #</b>	<b>NUMBER</b>	<b>NUMBER #</b>	<b>TEXT #</b>
<b>Sl. No.</b>	<b>Item Description</b>	<b>Quantity</b>	<b>Units</b>	<b>Rate incl GST in Rs. P</b>	<b>Amount Incl GST in Rs. P</b>	<b>TOTAL AMOUNT In Words</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>

1	Providing and fixing stainless steel (Grade 304) gates, railing made of Hollow tubes, channels, plates etc., including welding, grinding, buffing, polishing and making curvature (wherever required) and fitting the same with necessary stainless steel nuts and bolts complete, i/c fixing the railing with necessary accessories & stainless steel dash fasteners , stainless steel bolts etc., of required size, on the top of the floor or the side of waist slab with suitable arrangement as per approval of Engineer-in-charge, (for payment purpose only weight of stainless steel members shall be considered excluding fixing accessories such as nuts, bolts, fasteners etc.).	579.95	kg	772.40	<b>447953.38</b>	INR Four Lakh Forty Seven Thousand Nine Hundred & Fifty Three and Paise Thirty Eight Only
2	Dismantling old plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead	18.80	sqm	54.65	<b>1027.42</b>	INR One Thousand & Twenty Seven and Paise Forty Two Only
3	Stone tile (polished) work for wall lining over 12 mm thick bed of cement mortar 1:3 (1 cement : 3 coarse sand) and cement slurry @ 3.3 kg/sqm including pointing in white cement complete. 8.9.1.2 8mm thick. Granite of any colour and shade	21.32	sqm	3617.55	<b>77126.17</b>	INR Seventy Seven Thousand One Hundred & Twenty Six and Paise Seventeen Only
<b>Total in Figures</b>					<b>526106.97</b>	INR Five Lakh Twenty Six Thousand One Hundred & Six and Paise Ninety Seven Only
<b>Quoted Rate in Figures</b>			Select		<b>0.00</b>	INR Zero Only
<b>Quoted Rate in Words</b>		<b>INR Zero Only</b>				

## **SECTION-VIII**

### **TECHNICAL SPECIFICATION AND SAFETY MANUAL**

### **Technical Specifications**

#### Brief Specification-

Sl. No. of Item	Civil Works	
1	Entrance gates	
1.1	Stainless steel (Grade-304)	
1.1.1		Stainless steel (Grade-304) entrance gates as per approved design
2	Finishing	
2.1	Granite work	8 mm thick Granite wall lining of approved colour
3	Other works	
3.1		Dismantling old plaster work on Gate pillars

1. Unless otherwise specified, technical specifications of work shall generally conform to the relevant CPWD specifications of the latest edition including amendments thereafter.
2. Works not covered under paras as stated above , shall be carried out as per relevant Indian Standard specifications or Code of practice and/ or as instructed by the Engineer-In-Charge or his representative.
3. Safety Manual of NHPC as in force will be applicable for this contract.

## **SAFETY MANUAL**

Construction of Hydro-electric Project is a complex activity involving different operations going on at the same time in restricted working area as a result posing a safety hazard to the workmen and technicians involve in these operations. Yet, certain amount of safety consciousness does help to avoid or minimise accidents.

Accidents do not occur naturally but do so on account of certain definite reasons, most of whom can be foreseen, controlled or avoided. This Safety Manual has been drawn up with the objective of preventing recurrence of avoidable accidents in the construction of Hydro-electric Projects in this Corporation as well as ensuring a uniform and safe procedure for all construction work. The Project Authorities shall be responsible to see the provisions contained herein are followed in all works under their control to achieve the desired degree of safety. In addition they should always be alert for adoption of such measures as would result in improved working conditions and elimination of hazards. They should take prompt and reasonable precautions indicated by local conditions.

They shall also ensure that the contractors working under their control at the Projects also strictly observe safety methods. Suitable safety clauses shall be incorporated in all tender and contract documents. Strict penal action commensurate with the stipulated contract conditions should be taken against the defaulters.

In addition to this Manual, all applicable provisions of Central, States and Local Safety Laws and Regulations and Construction Codes as well as Indian Standard Safety Codes as issued from time to time, shall be observed by the Project Staff and the Contractor. Safety practices and instructions to be followed in connection with the electrical installation which have not been covered extensively in this Manual shall be followed as per provisions made in Indian Electricity Act, 1910 and Indian Electricity Rules, 1956 as amended from time to time. As regards detailed interpretation of their provisions, separate codes for safe design, construction, operation and maintenance of electrical installations shall be issued by the Generation Wing and a reference to the codes may be made for such details.

This Manual has been based upon the Safety Manual issued by the Central Water and Power Commission (now C.W.C.). Also, the suggestions regarding safety measures received from the Projects under N.H.P.C. and the recommendations of the various I.S.I. Codes on safety have also been consulted and necessary provisions incorporated in so far as these are applicable for Hydro-electric Projects.

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## CHAPTER I

### GENERAL

#### 1.1 GENERAL:

The Engineers at site shall at all times exercise reasonable and proper safety precautions for the safety of the people at all works under their control, in accordance with instructions contained in this Manual. They shall also ensure strict compliance of the same by their subordinates. Also, they shall see that the contractors executing works under their control adopt stipulated safety measures and adequately protect their workers.

In addition to instructions contained in this manual the safety regulations contained in the below mentioned ISI codes shall also apply wherever the provisions in the ISI codes are exhaustive in nature:

#### I.S. SAFETY CODES:

1. IS 3764-1966 Excavation work
2. IS 4756-1978 Tunneling Work (first revision)
3. IS 7293-1974 Working with Construction Machinery
4. IS 7969 1975 Handling & Storage of building materials
5. IS 4081 1967 Blasting and related drilling operations.
6. IS 3696 1966 Scaffolds & ladders (Pt. I Scaffolds)
7. IS 3696 1966 Scaffolds & ladders (Pt. II ladders)
8. IS 4138 1977 Working in compressed air (1st revision)

9. IS 4912 1978 Safety and health protection in electric gas in welding and cutting operations.
10. IS 818 1968 Safety requirements for floor and wall openings Railway and toe Boards.
11. IS 5121 1969 Piling & other Deep foundations
12. IS 4130 1976 Demolition of Buildings (1st revision)
13. IS 5916 1970 Construction involving use of hot bituminous materials.
14. IS 3016 1965 Fire protection in welding and cutting operations.

#### 1.2 ENFORCEMENT OF SAFETY REGULATIONS:

- 1.2.1 General Managers / Chief Engineers, Superintending Engineers, Executive Engineers, Supervisors and all other officials in charge of execution of work at the various organizational levels in the project shall ensure strict enforcement of safety regulations in the execution of works.
- 1.2.2 To assist the executive and supervisory staff of the project in spelling out the safety programmes and regulations prescribed in the Manual, a separate safety unit should be included in the project staff. This unit should consist of a Safety Engineer of the rank of Executive Engineer or Senior

Assistant Engineer and a number of safety inspectors to assist him. The number of safety inspectors will depend on the magnitude and distribution of work. The safety engineer will be directly responsible to the General Manager or other Engineer-in-Charge of the project in keeping him informed of the compliance or otherwise of all safety regulations and standards by the various executives, supervisory staff and contracting firms and assist him in maintaining safe standards of working.

The detailed duties of the safety staff shall be as under:

- a) To look into all procedures and practices and examine temporary structures, the failure of any of which may result in an accident.
- b) To go around the works regularly and advise the contractors and the department as to the measures to be taken to ensure safety of the works whether under the contractors or under the department.
- c) To see that the rules and regulations laid down in the safety manual are observed. Non-compliance with these regulations if any, should be brought to the notice of the Safety Engineer.
- d) To develop and execute programmes for the training of supervisory personnel in the application and observance of safety practices.
- e) To receive and analyze reports of all accidents and fires and initiate corrective actions warranted by the situations.
- f) To conduct safety education and propaganda.
- g) To recommend revisions or additions to the safety manual on safety measures in the light of project experience.
- h) To prepare safety posters, signs, displays, leaflets, bulletins, etc., and display them on neat attractive bulletin boards. Cartoons may also be displayed.
- i) Suggestions from the workers may also be obtained by means of suggestion boxes which may be kept at various places.
- j) Make certain that all Central Government, State Government or local laws and ordinance are complied with

1.2.3 A Project Safety Committee shall be constituted under the Chairmanship of General Manager of the Project, and shall have members from amongst the Senior Officers, Safety Engineer and representative of the contractor. The number of the members may vary and shall be decided by the General Manager according to the magnitude of the work and jobs involved. This Committee would meet from time to time, generally supervise the Safety arrangements, advise and give suggestions to the Safety Engineer, and consider the reports of the safety engineer.

### 1.3 **CONTRACTORS' SPECIAL RESPONSIBILITIES:**

1.3.1 The contractors shall at all times exercise reasonable and proper precautions for the safety of the people on the works and shall comply with the provisions of current safety laws, building and construction codes of the State Governments as may be applicable. All machinery and equipment and other sources of physical hazards shall be guarded in accordance

with the requirements of this manual and regulations or laws of the State Governments of the Government of India.

1.3.2 In order to supervise the work from point of view of safety, the contractor shall provide a full time Safety Engineer who shall report and be responsible to the Safety Engineer of the Corporation, an executive or his designated representative and shall be responsible for coordinating the safety programmes.

1.3.3 The contractor shall provide all necessary fencing and lights to protect the public from accidents and shall be bound to bear all the expenses of defence of every suit, action & 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 costs which may be awarded in any such suit, action & proceedings to any such persons or which may with the consent of the contractor be paid to compromise any claim by any person.

#### **1.4 IMPORTANT SAFETY RULES:**

- i) Each employee shall be provided initial indoctrination regarding safety by the contractor so as to enable him to conduct his work in a safe manner.
- ii) No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.
- iii) Under no circumstances shall an employee hurry or take unnecessary chances when working under hazardous conditions.
  - iv) Employees must not leave naked fires unattended. Smoking shall not be permitted

around fire prone areas and adequate firefighting equipment shall be provided at crucial locations.

- v) Employees under the influence of any intoxicating beverage, even to the slightest degree should not be permitted to remain at work.
- vi) There shall be a suitable arrangement at every worksite for rendering prompt and sufficient first aid to the injured under the guidance of a Medical officer.
- vii) The staircases and passageways, shall be adequately lighted.
- viii) The employees when working around moving machinery, must not be permitted to wear loose garments. Safety shoes are recommended when working in shops or places where materials or tools are likely to fall. Only experienced workers shall be permitted to go behind guard rails or to clean around energized or moving equipment.
- ix) The employees must use the standard protection equipment intended for each job. Each piece of equipment shall be inspected and after it is used.

#### **1.5 ACCIDENT REPORTS:**

1.5.1 Monthly reports on prescribed proforma of all accidents shall be promptly submitted to the Safety Engineer of the Corporation, with a copy to the Engineer-in-Charge giving such data as may be prescribed by the contracting officer.

1.5.2 On the occurrence of any accident a report should be made to the Safety Engineer of the Corporation with a copy to the

Engineer-in-Charge within 12 hours of the occurrence of the accident. In case of fatal accidents or those which are so serious that they are likely to result in the death of any workman, a report should be made immediately to the Engineer-in-Charge of the work.

8. Fatal, serious or minor

Signature with designation of  
Reporting Officer

1.5.3 The following sample forms (specimens attached at the end of this Chapter) may be used for reporting accidents and keeping relevant statistics:

To

#### **INJURY REPORT-PRELIMINARY**

Medical Officer

(To be submitted immediately after the accident)

9. Nature of injury

(N.B.)-Answers to all the items should be precise and definite.

10. Period of estimated disablement.

No. .... Date.....

Signature of Medical Officer.

Distribution:

1. Name of the person injured

2. Sex, Adult/Minor

1. Engineer-in-Charge

3. Department/Project/Division

2. Safety Engineer

4. Designation

5. Regular/Work Charged/ Muster-Roll /Contractor's employee

6. Date & hour of accident

7. Cause of accident

#### **C. INJURY REPORT-DETAILED**

Project.....Date of Report .....

Describe the accident in full.....

### Section-I

Name.....Age.....Occupation

Who was injured? Employer...How long employed....

Salary or wage....

Dates of previous injuries

Remarks.....

### Section-V

#### Type of Accident (Check one)

Fall of person- Same level

Falls of persons-One level to another

Flips (Causing strains not falls)

Struck by flying, rolling, sliding object

Stepping in or on object

Strains or sprains-lifting

Struck by or cut by hand tools

Other injuries from handling objects.

Burning or scalding

Electric shock or flash Explosions

Caught in or between

Striking against object

Struck by or run over by vehicle

Buried or partially buried by collapse of sides or fall of material

Drowning or suffocation

Poisoning, Infection

Other Describe.....

**Section-II** Date of injury.....Time

Time & Place Exact place where injury occurred.....

### Section-III

Describe injury.....

Name & Severity of injury.....

Did injury result in death or

Probable permanent disability.....

Yes/No.

Return to work .....

Date of death .....

### Section VI (Supervisor/Foreman's Statement)

### Section-IV

(Description of Accident which caused the injury)

I have personally investigated this accident, and concur in the analysis of causes given below:

Recommendation for prevention.....	(Broke, poorly designed, slippery, defective brakes etc.)
Remarks.....	Hazardous arrangement.....(Un safely piled material, poor labour, poor house-keeping, loose rock etc.)
	Improper illumination.....
	Improper ventilation.....
Signature of Foreman or other Immediate Superior.	(poor, dusty, gassy, high humidity, excessively hot etc.)

Causes of the Accident	Improper dress or appeal.....
	(Goggles, gloves, shoes, hard hat respirator etc.)
(To be completed by the Safety Engineer)	No mechanical cause
	Insufficient data to classify

For one cross (x) in the appropriate box in Section 7, Mechanical causes; and one cross (x) in Section 8, Personal causes, Select the cause in each Section which could have been most readily removed and the removal of which would have helped most to prevent the accident. In addition to marking the appropriate box, describe briefly but exactly the causes selected. Secondary or contributing causes may be indicated by drawing a circle in the appropriate box.

### Section VIII (Personal Causes)

Injured person	Other person
Physical or mental defect.....	
(Poor eye sight, arm amputated, deaf, epilepsy, etc)	
Lack of knowledge or skill.....	
(Unable to read, poor training, etc.)	

### Section VII

Improper guarding.....

(Unguarded, inadequately guarded, guard removed etc.)

Defective substances or equipment.....

Wrong attitude.....

(Deliberate, chance-taking, disregard for instructions, etc.)

No Personal causes      Insufficient data to classify

## Section IX

(Supervisory Fault)

Was Inadequate or faulty supervision or foremen ship a cause or contributing cause of this accident?

.....

(Yes or No)

Explain .....

---

## Section X (Corrective Action)

What has been done to prevent the occurrence of similar accidents in the future?.....

.....

This Report submitted  
by.....

(Safety Engineer)

Approved.....

(Construction Engineer or  
Superintendent)

## **CHAPTER 2**

### **EXCAVATIONS**

#### **2.1 OPEN EXCAVATION-EARTH & ROCK**

- 2.1.1 The serious hazards of excavation jobs are falls and falling objects. Accident prevention measures should be adopted and effectively carried out on each job.
- 2.1.2 The sides of every excavation, where there is a danger of fall or dislodgement of earth, rock or other material forming the side of or adjacent to any excavation shall be securely supported by adequately braced timber of suitable quality or other material unless the sides of the excavation are sloping to a safe angle.
- 2.1.3 No excavation of earthwork below the level of any foundation of a building or structure shall be commenced or, continued unless adequate steps are taken to prevent danger to any person employed, from collapse of the structure or fall of any part thereof.
- 2.1.4 In every excavation work along sloping ground, sides and slopes of excavation shall be maintained in a safe condition by scaling, benching or barricading. Loose earth and loose rock shall be continually sealed down. To ensure safety of workers engaged on such work, each worker shall be provided with a hard hat and a safety belt attached to a safety line. On steep slopes, workers shall not be permitted to work one above the other. All scaling work shall be done under the direct supervision of an experienced foreman.
- 2.1.5 Excavation, if over 1.2 m in depth, unless in solid rock or shale, shall be either shored, sheeted and braced or sloped to the angle of repose of the material when saturated. All shoring and bracing shall extend to bottom of excavation where necessary.
- 2.1.6 To hold banks of loose and unstable materials from sliding adequate shoring shall be used and under cutting of banks shall not be permitted. The bracing and shoring of trenches shall be carried out along with the excavation.
- 2.1.7 Additional precautions by way of shoring and bracing shall be taken to prevent slides, slips or caveings when excavations or trenches are made in locations subject to vibrations from rail-road or highway traffic, or the operations of machinery or any other source of vibration. The heavy construction machinery shall not be taken within a distance equal to the depth of the trench if the depth is less than 6m or 6 meters if the depth is more than 6m.
- 2.1.8 Materials used for bracing, shoring etc. shall be in good serviceable condition and timber shall be sound and free from large or loose knots.
- 2.1.9 Excavated or other material shall not be stacked within  $\frac{1}{3}$ <sup>rd</sup> of depth of the pit or 1m whichever is more, away from the edge of any excavation and shall be stored and retained so as to prevent it from falling or sliding back into the excavation and to prevent excessive pressure upon the sides of the excavation.
- 2.1.10 In all trenches 1.5m or more in depth, ladders extending from the floor of trench excavation to at least 1m above top of excavation shall be provided and so located as to provide means of exit without more than 15m of lateral travel.
- 2.1.11 Excavation areas shall be adequately lighted for night work.
- 2.1.12 During hours of darkness all public sidewalks be adequately illuminated and warning lights about the excavation shall be provided to ensure safety of pedestrians and vehicular traffic.

- 2.1.13 At all approaches and exits of the sites of excavations danger and warning signal shall be placed. To emphasize the danger, a flagman with a red flag shall also be posted to warn the public or approaching trucks and to direct trucks in and out of the site of excavation.
- 2.1.14 Every accessible part of an excavation pit or opening in the ground into which a person is liable to fall vertically from a height of 2m or more a suitable barrier about one metre high shall be provided.
- 2.1.15 **INSPECTION & EXAMINATION;**
- a) No person shall work in any excavation, shaft, earthwork or tunnel unless all timbering and plant used therein are inspected by a competent person before work is started and also after explosives have been used in or near the excavation, shaft, earthwork or tunnel.
  - b) When open excavations with steep side slopes are carried out by means of blasting, after every blasting operation, the side slopes of excavations shall be carefully examined by a competent person to prevent rock falls. Work inside the excavations shall not commence until all loose rock on the sides is first removed. All workers engaged in such excavations shall use hard hats.
- 2.1.16 No material or loan shall be placed or stacked near the edge of any excavation, shaft, pits or opening in the ground which may endanger persons works below.
- 2.1.17 Adequate measures shall be taken to prevent workers and spectators from approaching the dangerous areas. Visitors shall not be allowed on the scene of excavations unless they are accompanied by a supervisor.

## **2.2 TUNNEL & SHAFT EXCAVATION:**

- 2.2.1 Frequent careful inspection of tunnel walls and roof and through scaling or removal of loose rock are necessary to prevent rock falls. Ample illumination, good housekeeping and safe walkways are important factors in the prevention of accidents. All tunnel workers shall wear hard hats and hard toes shoes.
- 2.2.2 In every excavation of shaft and tunnel, sufficient safe means of access shall, be provided to every place at which any person has at any time to work.
- 2.2.3 In tunnelling, the drilling rigs shall be carefully designed, built and maintained. High drill rigs shall be provided with suitable railings around the top decks. All drilling shall be done wet. All the safety precautions for drilling or for the use of drills as given in chapters 3 & 5 shall be taken.
- 2.2.4 Care shall be taken in handling and use of explosives as specified in this Manual (Chapter 3). The loading of a round shall be completed preferably by the crew starting the work. Firing of round shall be the responsibility of the licentiate blaster and shall be done under his strict supervision.
- 2.2.5 After blasting inside a tunnel or shaft, scaling and removal of rock or loose material shall not commence unless the roof and walls of the tunnel and sides of a the shaft are carefully inspected by a competent person and loose rock from the roof and sides is first removed or unstable material is properly supported by shoring to prevent rock fall. When tunnelling with "Heading & Benching" method the heading supports shall be secured by anchoring before cutting the bench.
- 2.2.6 Dump cars shall be kept in good condition and shall be equipped with safety couplers. The use of rolling equipment with link couplers shall not be permitted. Rocker or cradle type dump cars shall be provided with a positive type lock to prevent accidental dumping. Dump cars shall not be overloaded.

- 2.2.7 a) Motive power, other than electric, shall not be used without prior authorization from the project head. No petrol engines shall be used underground. Diesel locomotives shall not be used underground unless equipped with a filter that will remove all carbon monoxide and oxides of nitrogen. Such filters shall be inspected in each shift by the master mechanic and more frequently by the locomotive operator.
- b) Every locomotive shall have headlights on each end. It shall be equipped with whistles or horn with a tone of sufficient volume to be heard by men along the track even when the air drills are working. There shall always be a flag man with loco and mine cars while mucking is being done.
- 2.2.8 The tracks shall be properly laid using rails of sufficient weight and shall be kept in safe operating conditions.
- 2.2.9 The ventilation system shall be adequate to maintain circulation of air in all parts of tunnels and shafts and following conditions shall be taken care of:
- a) Air shall be considered unfit for workmen to breathe if it contains any of the following:
- i) Less than 19.5 per cent oxygen by volume.
  - ii) More than 0.5 per cent carbon dioxide by volume.
  - iii) More than 0.01 per cent carbon monoxide by volume.
  - iv) More than 0.001 per cent hydrogen sulphide by volume.
  - v) More than 0.003 per cent oxides of nitrogen.
  - vi) More than 0.5% of methane at any place in the tunnel.
  - vii) More than 0.0005% of aldehyde.
- Any other poisonous gas in harmful amounts.
- b) In addition to the requirements given above, 2 cum of air per minute shall be furnished for each brake horse power of diesel locomotive used in the tunnel.
- 2.2.10 Sufficient general lighting shall be provided in the tunnels & shafts so that the pedestrians should have not need to use hand torches for walking safely.
- 2.2.11 All electric wiring shall be extra-heavy insulated and of sufficient capacity supported on insulators of approved type and not looped on or tied to spikes, ventilating pipe, or other makeshift supports. All switches shall be of the safety type. Lines shall be located so as not to create any electricity or tripping hazard to workers.
- 2.2.12 No inflammable materials or oil and grease shall be stored inside or near the tunnels or shafts and all combustible rubbish from the tunnel or shaft shall be promptly removed.

#### **SHAFT EXCAVATION:**

- 2.2.13 Head frames or shafts shall be open framework design and constructed from sound fire resisting materials. All sheaves should be of the proper diameter of the cable or hoist rope used shall be amply strong, properly mounted and frequently inspected.
- 2.2.14 Covered stairways a least 75cm. Wide shall be erected in all shafts except during the sinking period. If not possible to construct such a stairway a ladder shall be installed with landing at every 6 m of sufficient width, to permit men to pass. Where one or more drifts are to be driven from the shaft, landing shall also be provided at each drift in the man shaft. The distance between the centres of the rungs of ladder shall not exceed 35 cms and shall not vary more than 25mm in any one ladderway. The width of ladder inside of stringers shall not be less than 30cms. The rungs of a ladder shall in no case be less than 15cm from the wall or from any obstruction in the shaft or opening. Under no circumstances shall a ladder be installed including backwards from the vertical. Should it become necessary to offset a section of ladderway, the

top of a section shall extend not less than 1 m above the bottom of the section above or a handhold shall be provided. The side rails of the top-most section shall extend at least 1m above the ground.

- a) Fixed ladders of standard construction shall be provided for access to cable sheaves on head frames located over tunnels shafts. A runway or platform equipped with guard rails and toe boards shall be provided next to cable sheaves.
  - b) Timbers and projections on which debris may lodge on ladder ways and stair ways in daily use shall be regularly cleaned of all loose rock and other debris.
- 2.2.15 All hoisting equipment including ropes and cables shall be thoroughly inspected at least once a week and maintained in good condition. Suitable standby power supply arrangements or alternate means of working hoist mechanically shall be provided. Hoists shall never be loaded in excess of the maximum safe loads. Much buckets shall not be heaped up and no one shall remain under a bucket while it is being hoisted. Hard hats and hard-toe shoes shall be worn by every one engaged in shaft excavation. When hauling tools that project above the rim of the bucket, the tools should be loaded in such a manner that neither the bucket nor the tools shall come in contact with the sidewalls of the shaft.
- 2.2.16 Where tunnels are drives from shaft and a communication system is required, the telephone system shall be established. Ready communication must be maintained between the surface shaft and underground stations.
- 2.2.17 The shaft shall be protected with a two-rail guardrail at least 1 m high, with two bolts to prevent them from falling into the shaft. The gate opening into the shaft shall be closed at all times except when necessary to enter and leave the shafts or to empty the bucket or send materials down the shaft. Preferably the gates should be automatic in operation.

#### **GASSY TUNNELS:**

- 2.2.18 There must be a provision of automatic methane gas detector at face which is capable of giving warning when CH<sub>4</sub> (methane) exceeds more than 0.5% at the heading (MSA methane automatic detector 4 type).
- 2.2.19 Electrical equipment used inside the tunnel should be FLP construction.
- 2.2.20 Regular checking of methane gas by methane detector and proper recording of gas at every face in each shift is recommended.
- 2.2.21 A man shall be posted at each entry for checking of lighters, match-boxes etc. being taken inside by workers etc.
- 2.2.22 Tools and tackles made out of light alloys (such as Al and Mg) are not to be used inside the tunnels. They may cause sparks.
- 2.2.23 There must be a provision for approved type of safety lamps for each face to indicate the presence of black damp (i.e. Carbon dioxide formation at face).
- 2.2.24 When the tunnel heading is approaching some fault zone or sand dyke etc. care should be taken with respect to the heavy built-up of gas and bad roof.
- 2.2.25 Advance bore-holes of small size (37-42 mm) may be drilled at the tunnel face to give indication about the presence of gas and their strata condition. Their number may vary from 2 to 4 of 5 to 10 m long at an angle of 7' to 10' to the horizontal.
- 2.2.26 In case Methane is being tapped at a high pressure de-gassification by drilling long bore holes and applying high suction pressure 300 mm of Hg in the pipe line shall be done.

- 2.2.27 Shot firing should be minimised in a gassy heading. But should it be essential to do so, only permitted explosives with proper stemming material and approved FLP exploders shall be used.
- 2.2.28 Before shot firing the gas percentage at the face shall be checked and if the percentage of the gas found at the heading is more than 1% the blasting shall not be done.
- 2.2.29 Regular checking of gas at the faces shall be done before each shift.
- 2.2.30 After stoppage of ventilation, the gas percentage should be checked by some authorised person when the ventilation is restored. If the gas content is less than 0.5% then only the men may be allowed to resume work.
- 2.2.31 The use of diesel locomotive is generally not recommended inside the tunnel even if it is of FLP construction
- 2.2.32 The gas accumulation at the face shall be checked at the beginning of each shift and the presence of CO<sub>2</sub> shall be ascertained using flame safety lamp. If the condition is satisfactory then work-men may be allowed to approach the tunnel heading.
- 2.2.33 In case of tunnels where methane gas indicated there shall be a safety officer having qualification of Coal Mines Manager's Certificate of competency (at least 2<sup>nd</sup> class) to look after the proper ventilation aspect of the tunnel.
- 2.2.34 If the project is far away from any rescue station, some rescue apparatus, co-detectors etc. shall be procured which will be of help in case of emergency. Some project personnel should be trained to handle rescue apparatus as their training may be of much use in case of any gas explosion.
- 2.2.35 While fans are operating in series, it shall be ensured that all the fans in a duct line are working. In case of stoppage of any fan, there must be some signalling arrangement to indicate the failure.
- 2.2.36 If at any place the methane gas percentage exceeds 0.5% person should be withdrawn from the tunnel, electricity to be switched off and appropriate measures should be taken as described earlier.
- 2.2.37 The ventilation in gassy tunnels should be properly designed after analysis of the gases observed inside the tunnel.
- 2.2.38 There should be no breakage in pull duct line of the ventilation system.
- 2.2.39 At no cost, welding and cutting by gas should be allowed inside the gassy tunnel.
- 2.2.40 A regular analysis of the gases inside the tunnel should be got done with advance of the tunnel.

### **2.3 COFFER DAMS-CONSTRUCTION AND MAINTENANCE:**

#### **GENERAL:**

- i) Every coffer dam or caisson and every part thereof shall be of good construction, suitable and sound material and of adequate strength. It shall be properly maintained. Its construction, additions or alterations and dismantling including all work connected therewith shall be supervised by a competent person.
- ii) A cofferdam or caisson shall, where necessary, be specially secured in position so as to prevent movement in a manner dangerous to persons employed.
- iii) In any cofferdam or caisson, there shall be adequate means for persons to reach places of safety in the event of any inrush of water.

#### **INSPECTION AND EXAMINATION:**

- iv) No person shall be employed in a cofferdam or caisson unless it has been inspected once a day by a competent person and also after explosives have been used in or near the cofferdam or caisson in a manner likely to affect its strength and stability.

Necessary entry to the effect that the cofferdam or the caisson has been inspected shall be made in the register prescribed for the purpose.

**ATTENDANCE AND EQUIPMENT:**

- v) No person shall be employed as an under-water diver except for shallow depths where skin divers are employed unless:
  - a) A sufficient number of competent persons are employed in attendance upon him as to ensure his safety, and
  - b) There are provided and readily available, in good working order, sufficient and suitable diving plant and equipment, including air pumps, pressure gauges, and means of access to and from water and including at least one diving dress and one complete set of woollen clothing in excess of the number of divers under water at any one time and
  - c) Another diver above water provided with suitable equipment and plant is immediately available to the assistance of any diver under water in case of emergency.

**TESTS AND EXAMINATION OF EQUIPMENT:**

- vi) All diving equipment shall initially tested and thoroughly examined by a competent person and thereafter thoroughly examined by him after every three months, and record of such tests and examinations entered in a register maintained for the purpose
- vii) Air pump, airlines and diving helmets shall be thoroughly examined for any defect every time before they are put to use.

**SIGNALLING:**

- viii) In all diving operations, efficient signalling system to enable the diver to be in communication with his attendant shall be maintained.

**MEDICAL EXAMINATIONS:**

- ix) No person shall be employed under water as a diver unless he has within the previous four days been examined by a project doctor or by certifying surgeon or by a medical officer of the contractor or firm and certified by him as fit for diving.

**2.4 DEMOLITION:**

- i) All demolition work shall be placed under the supervision of a competent person experienced in demolition work.
- ii) During demolition work all electrical cable and water, gas or steam pipes shall be disconnected except those which are used for the operations.
- iii) All steps shall be taken to prevent danger to persons employed from risk of fire or explosion due to gas, vapour or flooding due to water from watermains, sewers and culverts.
- iv) All practical steps shall be taken to avoid danger from collapse of the structure when any part of the framing is removed from a framed or partly framed structure which may endanger life of any person employed.
- v) Before demolition is commenced and also during the progress of the work, precautions shall, where necessary, be taken by adequate shoring or otherwise to prevent the accidental collapse of any part of the structure of any adjoining structure the collapse of which may endanger any person employed.

- vi) Warning signs and red lights should be placed wherever there is danger to public, and the structure under demolition should be adequately barricaded and roads leading to the site of demolition should be closed so that people are kept away from the hazardous area.

### **CHAPTER 3**

#### **EXPLOSIVES, DRILLING AND BLASTING**

#### **EXPLOSIVES:**

#### **3. GENERAL:**

- 3.1** All operations involved in transportation, handling, storage and use of explosives shall be as per Indian Explosives Act and shall also conform with the provisions made hereunder.

#### **3.2 SUPERVISION:**

Explosive shall be handled by or under the supervision of competent persons who are fully experienced in the work and who have received adequate instructions as to the dangers connected therewith and the precautions to be observed.

#### **3.3 TRANSPORT AND HANDLING:**

- i) Explosives shall not be transported to the site of operations except in suitable cases or containers which are so made as to prevent any spillage of explosives and any danger of sparks or other sources of ignition during conveyance. No explosive shall be removed from such cases or containers except when it is to be used forthwith for the purpose of work.
- ii) No explosives shall be transported in mechanically propelled vehicle unless such vehicle is locked and is of a type approved in writing by the Chief Inspector of explosives. The following rules should also be observed:
  - a) Vehicles must have springs under the body. Unsprung country carts should be not used. Tyre pressures shall be as per Indian Explosives Regulations.
  - b) Detonators and igniters must not be carried in the same vehicle with explosives.
  - c) The speed of vehicle must not exceed 24 Kms per hour.
  - d) Besides the driver, only one helper shall be accommodated in the vehicle. The vehicle carrying the explosives must not be transport workmen or other materials to workspots although there may be enough space for men or material.
  - e) Drivers must not leave the vehicle unattended while transporting explosive.
  - f) All vehicles transporting explosives shall be marked on play carded on both sides and ends with the words "EXPLOSIVES" in white letters not less than 75 mm tall on a red background. All explosive boxes shall bear explosives Lot No., Mfg. Date, expiry date etc. clearly on them.
  - g) A motor vehicle carrying explosives should not be refilled except in emergencies and even then only when motor is stopped and other precautions taken to prevent accidents. Such vehicles should invariably have at least two fire extinguishers placed at convenient points.
  - h) Vehicles transporting explosives shall never be taken into a garage, or repair shop, or parked in congested areas, or stored overnight or at any other time in a public garage or similar building.
  - i) Explosives shall not be transported on a public highway during hours of darkness except in extreme emergency and even then only with the written approval of the project officials.

- j) Explosives shall not be transported in any form of trailer, nor shall any trailer be attached to a motor truck or vehicle hauling explosives.
- k) No transfer of explosives from one vehicle to another shall be made on any highway except in case of emergency.
- l) Persons employed in the transport or handling of explosives should not carry with them or in the vehicles, matches, loaded fire arms, petrol or any flame producing devices.
- m) All explosives should be adequately protected against theft
- n) Smoking shall be prohibited during handling and transport of explosives.
- iii) Motor vehicles used for transporting explosives shall be carefully inspected daily to ensure that;
  - a) Filled and serviceable fire extinguishers are in position;
  - b) The electric wiring is well insulated and firmly secured;
  - c) Chassis, engine and body are clean and free from surplus oil and grease;
  - d) Fuel tank and feed lines are not leaking;
  - e) Lights, breakers and steering mechanism are in good working order; and
  - f) Vehicle is in proper condition in all respects for the safe transportation of explosives.
- iv) Boxes of explosives should not be handled roughly or allowed to fall.
- v) Containers of explosives shall be opened only by means non-sparking tools or instruments.
- vi) After the loading of a blast is completed, all excess explosives and detonators shall be removed to a safe location or returned at one to the storage magazine, observing the same rules as when being conveyed to the blasting area.
- vii) Containers for detonators shall always be used only for storing detonators.

### **3.4 STORAGE:**

- i) The magazine should, at all times be kept scrupulously clean. High explosives like dynamite should be stored in a dry, clean, well-ventilated, bullet-proof and fire-proof building constructed in accordance with Indian Explosives Act, on an isolated site. The area around the magazine for a distance of 8m shall be kept clear of all vegetation and combustible matter. There shall be a barbed wire fencing and security lights around the magazine and security guards shall be posted for 24 hours.
- ii) No unauthorized person is at any time to be admitted into the magazine.
- iii) The person in charge of the magazine is to take care the magazine is well securely locked.
- iv) The magazine on no account is to be opened during or on the approach of a thunderstorm and no person should remain in the vicinity of the magazine during such storm. Sufficient number of lightning conductors should be provided on top of the magazine.
- v) Magazine shoes, without nails, should be kept at all time in the magazine, and a wood tub or cement trough, about 30 cms high and 45 cms in diameter, filled with water should be fixed near the door of the magazine.
- vi) Person entering the magazine must put on the magazine shoes provided for the purpose, and be careful not to allow the magazine shoes to touch the ground outside the clean floor.
- vii) Persons with bare feet shall, before entering the magazine, dip their feet in water, and then step direct from the tub over the barrier (if there is one) on to the clean floor.

- viii) A brush or broom should be kept in the lobby of the magazine for cleaning the magazine on each occasion it is opened for the receipt, delivery or inspection of explosives.
- ix) Light should be obtained from an electric storage battery lantern. Electric lights from the supplying main, taken through conduit wiring and properly earthed may be obtained with the approval of Chief Inspector or Explosives.
- x) No matches should be allowed in magazine.
- xi) No person having articles of steel or iron on him is to be allowed to enter a magazine.
- xii) Oily cotton rags, cotton waste and articles liable to spontaneous ignition, should not be taken into a magazine.
- xiii) Workmen, sweepers, etc. should be examined before they enter the magazine to see that they have none of the article mentioned in rules (x), (xi), (xii) on their person. All other men entering a magazine should not also have such articles on their person.
- xiv) No tools or implements other than those of copper, brass, gun metal or wood should be allowed inside the magazine. Tools should only be used with great gentleness and care.
- xv) Boxes of explosives should not be thrown down or dragged along with floor and should be stacked on wooden trestles. Where there are white ants, the legs of the trestles should rest in shallow copper lead or brass bowls, containing water.
- xvi) Packages containing explosives shall not be allowed to remain in the sun.
- xvii) The order of storing should be such as to allow the oldest explosives to be used first. There should be sufficient space between the stacks.
- xviii) Empty boxes should not be stored in the magazine not let any packing material lie loose.
- xix) Blasting caps and electric blasting caps should never be stored in the same box, magazine or building with other explosives.
- xx) The following should be hung up in the lobby of the magazine.
  - a) A copy of these rules;
  - b) A statement showing the stock in the magazine; and
  - c) Certificate showing the last date of testing of the lighting conductor.
- xxi) All magazines which contain more than 115 kgs of high explosives such as Blasting Gelatine, Carbonates, Calcite Dynamite, Gelignite, Monobel Powder, Phoenix Powder, Roburite, Tonite and Ammonal etc should be impacted at least twice a year by the officer in charge thereof.
- xxii) Adequate fire fighting equipment shall be provided in the magazine.
- xxiii) Signboards reading "DANGER HIGH EXPLOSIVES" "PROTECTED AREA" "NO SMOKING" etc. shall be conspicuously displayed in front of the magazine.
- xxiv) Proper CRP/Police Guard shall be posted to guard the magazine.

### **3.5 DRILLING:**

#### **a) GENERAL:**

- i) The position of all holes to be drilled must be marked out with white paint.
- ii) All holes shall be of greater diameter than the diameter of the cartridges of explosives used.
- iii) Loading and drilling shall not be carried out at the same time in the same area.
- iv) A drill, bick, or pore shall not be inserted in butts of old holes even if examination fails to disclose explosives.

- v) Drilling shall not be resumed after blasts have been fired until a thorough examination has been made to make sure that there are no unexploded charges which the drills may strike.
- vi) Drilling shall not be started until all remaining butts of old holes are examined for unexploded charges.
- vii) Rock drillers should be provided with approved, respirators in sillicious dusty atmosphere arising out of drilling operations.

**b) LOADING:**

- i) Bore holes must be cleared of all debris before a cartridge is inserted.
- ii) In loading bore holes, tamping shall be done with a wooden mallet having no exposed metal parts.
- iii) Primed cartridges shall be seated by even steady pressure only.
- iv) All loaded holes or charges shall be checked and definitely located before firing.
- v) When holes are sprung, ample time shall be left between spring shots for the holes to cool, and also between the last springing shot and the loading of the main charge.
- vi) When practicable no more cartridges shall be primed than are required for a round of blasting.
- vii) Detonators shall be inserted only in a hole in the end of a cartridges prepared specially for that purpose.
- viii) Holes in cartridges shall be made with a sharpened wooden stick.
- ix) All charges, before being fired, shall be covered with blasting mats where blasting is done in the vicinity of structures likely to be injured by flying debris.
- x) Detonating cord shall be cut from supply reel before attaching to explosive or tamping in hole. Use of the short pieces of fuse shall be prohibited for detonation purposes.
- xi) No welding shall be done inside the tunnel at the time of loading of the face, till the blast has been taken.

**c) WIRING:**

- i) All electric caps in a blast shall be of the same manufacture.
- ii) Each electric blasting cap shall be tested with an approved galvanometer before and after tamping in a hole to determine whether it will carry the current. All testing shall be done away from the tunnel face.
- iii) After testing the leg wires of electric blasting caps, they shall be short circuited by twisting the bare ends together and shall remain so twisted until ready to be connected into the circuit preparatory to connecting to the firing line.
- iv) Unless the power supply is heavy, it is recommended that all electric blasting caps shall wired in series and firing line shall not be smaller than No.14B and S gauge copper wire.
- v) The number of electric blasting caps used in a circuit shall not exceed the tested capacity of the blasting machine.
- vi) The circuit, including all caps, shall be tested with a circuit tester or galvanometer, operating accurately, before being connected to the firing line.
- vii) Cartridges shall not be primed nor boles loaded during the approach of a thunderstorm or while it is in progress. If a charge has been primed or holes loaded, every person should be ordered to a safe distance until the storm is over.
- viii) Blasting circuit wires shall never touch another wires carrying electric current.
- ix) Blasting operation control shall consist of two switches, a safety switch and a firing switch located at least 2 meters apart, the connection between the switches to be

made by a "Plug in" jumper which may be permanently attached to the safety switch. The "plug in" jumper is so made that it cannot be plugged into or connected to the firing switch until the firing switch is unlocked and the jumper must be disconnected from the firing switch before the firing switch can be locked.

- x) Both the safety switch and the firing switch shall be of the locking, double pole, double throw type which when opened and locked in downward position short circuit and ground the leading wires.
- xi) Both the switches shall be locked immediately after firing the shot and before any person is allowed to return to the area. Keys to the switches shall remain in the possession of the starter at all times.

**d) FUSE BLASTING:**

- i) The length of fuse to be used in blasting shall in no case, be less than 75 cms but shall not be less than that required by State Law, if any.
- ii) Blasters or shot firers should be cautioned always to use sufficient lengths of fuse to permit them to reach a safe place before the first hole is fired. The fuse lengths given in the following tabulations are suggested for normal conditions.

**FUSE LENGTHS**

Number of holes	Burning Rate 40 sec/foot	Burning Time
4-10	1.8 metre	4 minutes
11-12	2.15 metre	4 minutes 40 seconds

- iii) Not more than 12 holes shall be loaded and shot at one time if cap and fuse are used to detonate the charge.

**MUDCAP BLASTING:**

- iv) Mud cap blasting being inefficient and dangers should be avoided. To or more mud caps shall not be placed on one rock except when electrically detonated.

**e) FIRING:**

- i) Shots shall, so far as practicable, be fired electrically and only apparatus especially designed for the purpose shall be used. No shot shall be fired except by a licenciate blaster authorised by the engineer-in-charge.
- ii) The charge should be fired, successively and not simultaneously.
- iii) Prior to the firing of a shot, all persons in the blasting area shall be warned of the blast and ordered to a safe distance from the area.
- iv) Competent flagmen, equipped with red flags and whistles shall be posted to stop traffic at access points, on each possible route of travel, to the vicinity of the blasting area. Blasting shall be done at fixed hours and the blasting times shall be displayed on a Notice Board.
- v) Blasts shall not be fired until it is absolutely certain that every person has retreated to a safe distance.
- vi) The person-in-charge of blasting shall be last one to leave the area to be blasted.
- vii) The signal to fire shall be given only by the person-in-charge of the blasting.
- viii) A loud pre-arranged, warning signal shall be given at a proper time before firing a blast and all clear signal shall be given when the blasting is over.

- ix) Definite places of shelter, natural or artificially constructed, shall be assigned to the crew. Workers should be made to go to these shelters rather than trust each other's judgement about a safe place.

**f) INSPECTION AFTER BLASTING (MISFIRE DRILL):**

- i) Immediately after a blast has been fired, the firing line shall be disconnected from the blasting machine or other source of power.
- ii) After a blast has been fired, a careful inspection should be made by the blaster to determine if all charges have been exploded. The blaster shall count the number of the exploding shots in blasting. Misfires in fuse blasting shall not be examined for at least 10 hours after its failure to explode. Electric blasting misfires shall not be examined for at least 15 minutes after failure to explode. Other persons shall not be allowed to return to the area of blast until and "All Clear" signal is given.
- iii) All wires shall be carefully traced and search made for any exploded cartridges by the person-in-charge of the blasting operation.
- iv) Loose pieces of rock and other debris shall be sealed down from the sides of the face of excavation and the area made safe before proceeding with the work.

**MISFIRES:**

- v) Misfired holes should be placed in the charge of a competent person.  
If broken wires, faulty connections, or short circuits are determined as the cause of a misfire, the proper repairs shall be made, the firing line reconnected, and the charge fired. This shall be done, however, only after a careful inspection has been made of burdens remaining in such holes and no hole shall be so fired when the burden has been dangerously weakened by other shots.
- viii) The charge of explosives from a misfired hole shall not be drilled, bored or picked out.
- ix) Misfired charges tamped with solid material shall be detonated by the following method:
  - a) Float out the stemming by use of a water or air jet from hose until hole has been opened to within 60 cm of charge;
  - b) Water shall be siphoned off or pumped out;
  - c) New charge shall be placed and detonated.Whenever this method is not practicable, then a new hole not nearer than 60cms should be drilled, loaded and detonated. A careful search shall be made of unexploded material in the debris of the second stage.

**3.7 TUNNEL AND SHAFT BLASTING:**

- i) Only electric blasting shall be adopted for shaft and tunnel work.
- ii) A separate circuit independent of power and light circuits shall be used for blasting.
- iii) No electrically energized circuit shall be installed on the same side of the shaft or tunnel with the blasting circuits.
- iv) All electric lights or other energized circuits shall be disconnected for at least 200 ft. from the point of loading.
- v) All tracks, airlines and vent pipes shall be kept properly grounded.
- vi) For loading purposes the employees shall be equipped with permissible battery lamps.
- vii) Switches shall be as specified in para 3.5 C (ix). The safety switch and the firing switch shall be placed on opposite sides of the tunnel.

- viii) Only explosives, which produce less than 0.005 cum of poisonous gas-(carbon monoxide and hydrogen sulphide) per 1<sup>1</sup>/<sub>4</sub>" x 8" cartridge shall be used for shaft and tunnel work.
- ix) No fire, flame, smoking or open lights shall be allowed within 6 meters from any explosive except for the purpose of firing a charge.
- x) Adequate warning notices shall be given to all persons at the time of firing and it shall be the duty of every Employer to provide adequate shelters or screens for protection of workers exposed to risk of injury from the explosion or from flying material.
- xi) There shall be kept by the Employer or his agent a register of explosives in which particulars of all issues and returns, particulars of explosives used in each blasting operation and particulars of misfired shots shall be entered.

## **CHAPTER 4 CONSTRUCTION**

### **4.1 SCAFFOLDS:**

- 4.1.1 Scaffolds of proper type shall be provided for all work that cannot be done from the ground or from part of a permanent structure or from a ladder or other available means of support and safe means of access shall be provided to every place at which workers are required to work.
- 4.1.2 Every scaffold and every part thereof including supports shall be of good construction, of suitable and sound material and of adequate strength for the purpose of which it is used and it shall be properly maintained. Construction and dismantling of every scaffold shall be under the supervision of a competent person. Boards and planks used for the floors shall be of uniform thickness, butt jointed, closely laid, and securely fastened in place.
- 4.1.3 Every scaffold shall be securely supported or suspended and shall, where necessary be sufficiently and properly struted or braced to ensure stability. The use of cross braces or framework, as means of access to the working surface shall not be permitted.
- 4.1.4 All scaffolds or working platforms of any nature shall be securely fastened to the building or structure, or if independent of the building shall be braced or guyed to prevent sway.
- 4.1.5 In the construction of dams sufficient anchorage shall be provided in the dam itself at the time of construction. The projecting anchorage shall be cut off only on completion. It is safer to avoid support on the sloping runners. The points should be provided with bolts and nuts and not bent rods.
- 4.1.6 **SUSPENDED SCAFFOLDS:**
  - i) Outriggers or other means of supports of suspended scaffolds shall be of adequate length and strength, (not more than 2m length unless specified by the Engineer-in-Charge) properly constructed, installed and securely fixed by anchor bolts or other equivalent means.
  - ii) Ropes chains, or other means of suspension shall be of good construction, sound material, adequate strength and free from patent defects and properly secured. The ropes and chains shall have a factor of safety of 8.
  - iii) The platform shall not be less than 45 cms wide and points of suspension not more than 3 metres apart and so arranged or secured that at the working position the

edge is as close as practicable to the working face when persons have to work in a sitting position.

- iv) All rolling scaffolds shall be equipped with a positive locking device to prevent accidental movement of the scaffolds. These shall be periodically tested.
  - v) Suspended scaffolds shall be tested as frequently as may be necessary to ensure that minimum safety factors are maintained. The test will be made by raising the working surface 30 cms above the ground and loading it with at least three times the maximum weight that will be imposed upon it.
- 4.1.7 Skips, buckets, baskets and similar equipment shall only be used for work of short duration when use of suspended scaffold is unreasonable and shall be used under the supervision of a responsible person. The skip, bucket or basket shall be at least 75 cm deep.
- 4.1.8 Trestle scaffolds shall not be of more than three tiers and the working platform shall not be more than 4.5 metres above the ground or floor or other surface upon which the scaffold is erected, and no trestle scaffold shall be erected on a suspended scaffold.
- 4.1.9 Men shall not be allowed to work from scaffolds during storms or high winds.
- 4.1.10 If scaffolds are to be used to a great extent or for a long period of time, a regular plank stairway, wide enough to allow two people to pass, shall be erected. Such stairways shall have hand rails on both sides.
- 4.1.11 When work is being performed above a scaffold platform a protective overhead covering shall be provided for the men working on the scaffold.
- 4.1.12 Whenever workmen have to work or constantly pass under a scaffold on which men are working a screen or other protection shall be provided to catch any falling material. Such protection shall extend outside the scaffold properly in order to catch any material falling off the edges of scaffold platforms. 12 mm wire mesh netting of No. 18 gauge or better may be used for this purpose.
- 4.1.13 Side screens shall be provided on scaffolds erected along passageways or other thorough fares.
- 4.1.14 On high scaffolds a netting or equivalent guard shall be provided for the space between toe-boards and railings.
- 4.1.15 During dismantling of scaffolds necessary precautions shall be taken to prevent injury to persons due to fall of loose materials, bracings and other members of the scaffold shall not be removed prematurely while dismantling, the entire scaffold shall be maintained stable and rigid so as to avoid the danger of collapse. Nails from the planking and various members of the scaffold shall be carefully removed and all material carefully piled.

#### **BALLI STAGINGS:**

- 4.1.16 These stagings used upto a height of 12 meters shall be designed and erected with adequate bracings securely fastened under the supervision of an experienced and competent person and shall be regularly inspected and properly maintained.

#### **4.2 PLATFORMS, GANGWAYS AND RUNS:**

- 4.2.1 All working platforms, gangways and runs from which workers are liable to fall more than 2 meters shall be:
- a) Of adequate width depending upon the type of work done and closely boarded, planked or plated. For platforms the width shall not be less than 60 cms. For gangways and runs the minimum width shall be 45 cms but when such gangways or runs are used for passage of materials the width shall not be less than 60 cms.

- b) Provided with suitable guard rails of adequate strength to a height of 1 meter above the working surface and toe-boards of at least 20 cms in height to prevent fall of persons, materials or tools.
- 4.2.2 Every platform gangway run or stairs shall be kept free from any unnecessary obstruction, material or rubbish and from any projecting rails, and when they become slippery appropriate steps shall be taken by way of sanding, cleaning or otherwise to remedy the defect.
- 4.2.3 Each supporting member used in the construction of runways, platforms, ramps and scaffolds shall be securely fastened and braced. The supporting member shall be placed on a firm, rigid, smooth foundation of nature that will prevent lateral displacement. The thrust-out members from which a scaffold is suspended shall be sufficiently strong and shall extend at least 30 cms outside the platform being suspended and have a stop block or bolt at the outer end.

#### **PLATFORMS:**

- 4.2.4 The minimum uniformly distributed design load per sq. metre of platforms shall be 300 kgs. In case of stone masonry it shall be 450 kg per sq. metre. Any concentrated load at any point in the span shall not exceed the designed uniformly distributed load. A factor of safety of 4 shall be adopted. Planking shall not be less than 30 mm thick.
- 4.2.5 A scaffold platform plank shall not project beyond its end-supports to a distance exceeding four times the thickness of the plank unless it is effectively secured to prevent tipping.
- 4.2.6 Cantilever of scaffold planks shall be avoided. Ledgers or putlogs should be erected to support the ends of such planks.
- 4.2.7 Where planks are butt jointed, two parallel putlogs must be used, not more than 10 cms apart, giving each plank sufficient support.
- 4.2.8 The following minimum widths of platforms for various types of scaffolds are recommended:
  - a) Where platform is not more than 2 metres above the ground or solid floor:
    - i) For painters, decorators and similar work men.....30 cms
    - ii) For other types (Men and Tools only).....50 cms
  - b) Where platform is more than 2 metres above the ground or solid floor;
    - i) For men, tools & materials .....120 cms
    - ii) For men, tools, material & vehicles .....150 cms

#### **GANGWAYS AND RUNS:**

- 4.2.9 All planks forming a gangway or run shall be so fixed and supported as to prevent undue or unequal sagging.
- 4.2.10 No gangway or run the slope of which exceeds 1 vertical to 1<sup>1</sup>/<sub>2</sub> horizontal shall be used.
- 4.2.11 Where the slope of a gangway or run renders additional foot-hold necessary, and in every case where the slope is more than 1 vertical to 4 horizontal, there shall be provided proper stepping laths which shall:
  - i) be placed at suitable intervals, and
  - ii) be of the full width of the gangway or run except that they may be interrupted over a width of not more than 10 cms to facilitate the movement of borrows.

#### **4.3 LADDERS:**

- 4.3.1 Every ladder and step-ladder shall be of good construction, sound material and adequate strength. These shall be inspected at least once a fortnight and observations recorded.
  - a) No ladder with defective or missing rung or with any rung which depends for its support solely on nails, spikes or other similar fixing shall be used.
  - b) Wooden ladders should not be painted as paint covers up defects but linseed oil or clear varnish should be used.
- 4.3.2 The use of ladders for other than a means of access should be eliminated as far as possible.
- 4.3.3 Whenever a platform is 1-5 meters or more above the ground, a ladder or stairway shall be provided, one for each successive platform. Safe access from and to ladders or stairs must be provided at all platforms.
- 4.3.4 Every ladder used for a vertical height of more than 9 meters shall be provided with an intermediate landing and vertical distance between two successive landing places shall not exceed 9 meters. All intermediate landings shall be provided with suitable guard rails to a height of at least 1 meter above the landing place.
- 4.3.5 Where a ladder is used as a means of communication or as a working place the ladder shall rise, or adequate hand-hold shall be provided, to a height of at least 1 meter above the place of landing of the highest rung to be reached by the feet of any person working on the ladder, as the case may be, or if that is not possible to the greatest practicable height.
- 4.3.6 When using a ladder or a step ladder, the user should always face the ladder. The transportation of materials by ladders should be reduced to the minimum. Tools and materials should wherever practicable, be pulled up with a rope.
- 4.3.7 Ladders should not be placed in front of doors opening towards the ladders or against window sashes. Stepladders should be opened out fully before use. Two ladders should be spliced together to provide access to a greater height than when a single ladder is used.
- 4.3.8 When permanent or portable ladders are used, the upper ends shall extend 110 cms above the platform. Portable ladders shall be securely fastened at the bottom and top.
- 4.3.9 All ladders shall be periodically inspected. The stability of ladders should be tested before using it.
- 4.3.10 A ladder should not be placed upon a box, barrel or other movable insecure object.
- 4.3.11 Portable ladders should be in a safe position before being climbed. The slipping of a ladder at either end should be carefully guarded against, especially where the supporting surfaces are smooth or vibrating. If necessary, a person shall be stationed at the base of the ladder to prevent it from slipping.
- 4.4 OPENING, DANGEROUS CORNERS, BREAKS OR EDGES & SLOPPING SURFACES:**
  - 4.4.1 Every accessible opening through which any person is liable to fall a depth of more than 12 metres or to fall into any liquid or material so as to involve risk of drowning or of serious injury shall be provided with guard rails 1 metre above the edge and toe boards at least 20 cms high or a covering to prevent fall of persons, tools or materials through the opening.
  - 4.4.2 Every dangerous corner, break or a edge or any structure which is accessible to any person shall be provided with guard rails of adequate strength and, if necessary, with the toe boards.
  - 4.4.3 Any person employed on a sloping surface of a vertical fall of more than 2 metres shall be provided with suitable ladders or crawling boards properly secured and a suitable working platform fitted with suitable guard rails and in case it is

impracticable or inappropriate to provide such ladders, crawling boards or working platforms, suitable safety belt of sound material and in good condition with a rope of adequate strength and length enabling the wearer to attach himself to a secure anchorage shall be supplied, or where the wearer cannot so attach himself, a second person shall attach or hold the rope in a secure manner.

#### **4.5 FORM CONSTRUCTION AND CONCRETE PLACEMENT:**

##### **FORM CONSTRUCTIONS:**

- 4.5.1 Safety hazards in form-work construction such as those due to poor housekeeping, leaving materials and tools where they may fall and cause injuries; the tops of forms used as walkways not equipped with standard guardrails and toe-boards on the open side, and failure to properly secure form of scaffolds can be reduced, if not eliminated, by carefully planning.

##### **HANDLING FORMS:**

- 4.5.2 All forms or form panels that are to be used or reused should have U-bolts, sufficient in number and size, to carry the weight of forms or form panels. All temporary bracing shall be securely fastened to prevent members from falling where panels are being moved.

##### **RAISING:**

- a) All Form-raising operations should be conducted in a safe and orderly manner and only experienced workmen should be allowed on this type of work. All form raisers shall use safety belts when required to go over the side unless scaffolds are in place on the form.
- b) 'A' frames shall be designed and maintained to withstand all loads imposed upon them. All head and tail jacks shall be maintained in good working order. Tail jack fasteners of sufficient length and size shall be securely anchored in the concrete.

##### **STRIPPING;**

- a) All form stripping shall be conducted in a safe and orderly manner and in accordance with the rules for good housekeeping. All stripped lumber shall be placed in piles or removed immediately from the work area. All protruding nails or superfluous bolts or studs used to fasten the shuttering shall be cut or bent down soon after the stripping.
- b) Boatswain's chairs, safety belts, and ropes shall be used where workmen are exposed to falling hazards of such stripping operations and shall be protected from falling objects.

##### **CONCRETE PLACEMENT:**

- 4.5.3 All employees placing concrete should wear hard hats and rubber boots with trouser legs outside. Shirt sleeves should be rolled down, gloves should be worn, and every reasonable precaution taken to keep cement and concrete off the skin. Provision should be made for concrete workers to take a shower before leaving the jobs at the end of their shift.
- a) The water in freshly mixed concrete contains lime and alkalis and may cause severe and painful damage to skin and eyes. Such contacts should be avoided by proper

protective clothing, boots, gloves, goggles etc. If they should occur, the workman should immediately remove liquids or substances by washing in water.

- b) Cement and concrete when dumped or dropped splashes like water and this is another way the burning lime and alkalis can get into unprotected eyes.

4.5.4 Men in good physical condition should be employed to operate vibrators. Lowering of vibrators from one level to another by use of air hose or electric cable shall not be permitted.

4.5.5 When concrete is transported by means of chutes, the towers shall be of substantial construction, sound material and ample strength to carry the greatest load that could possibly occur. They shall be properly guyed and provided with safe access. At each level of the chute where men work, landing platforms shall be provided and the chute shall be properly guyed and the area below the spout shall be barricaded when practicable to keep people out of the areas where they might be injured by falling concrete.

#### **CONCRETE BUCKETS:**

4.5.6 Concrete buckets for use with cranes and cable ways shall be constructed without flanges or other projections that may collect concrete which might be dislodged and fall on workmen. Buckets shall have an air connection to operate the dumping mechanism. All concrete buckets that are dumped by control of a cableway operator shall be equipped with safety catches that must be manually released before the concrete can be dumped. No man shall ride a bucket for any purpose.

4.5.7 When it is necessary to drift a bucket to a place not accessible by the crane, the drifting shall be done by some mechanical means and not by men pushing or pulling the bucket. Drifting the bucket by swinging the crane shall be prohibited.

4.5.8 Only those workmen who are known to be careful and reliable should be employed as signalmen to direct the spotting of buckets. Signalmen should be so stationed in a safe place, that they can see the entire area where concrete is being placed. A man should be specially designated to watch the movement of the bucket and warn the crew and vibrator operators of the approaching bucket so that all workers may clear out of the area affected by the bucket.

4.5.8 a) Workman/inspectors shall not enter a bin containing cement sand, aggregates unless wearing a safety belt with life line attached and attended by another worker who will pay out and keep minimum slack in the line at all times.

#### **MIXER:**

4.5.9 All mixer gears, chains and rollers shall be guarded. If the mixer has a charging skip, it shall be guarded by bars on the sides to prevent any one walking under the skip. The cable and sheaves should be inspected daily when the mixer is in continuous daily operation. When it is necessary to get inside mixers for cleaning, repairs or inspection, the control switches shall be locked and notice to the effect pasted on it to prevent inadvertent starting of the mixer.

#### **MIXING PLANT:**

4.5.10 Mixing plants shall be adequately designed and precautions taken to protect workmen from falling objects. Walkways, platforms, stairways and ramps shall be well built and protected. The operations of the plant shall be co-ordinated by signals or interlocking devices as may be necessary to ensure the safety of all workmen. An air exhaust system shall be installed to remove cement and other dusts from the inside of the plant. Respirators should be worn when necessary.

#### **PUMP CRETE:**

- 4.5.11 (a) The scaffolding supporting the pipe shall be designed to carry the pipe when filled with concrete plus 100 percent overload, plus the estimated weight of the maximum number of workmen that may use the scaffold at the same time while the pump is operating. A factor of safety of four shall then be used.
- b) The pipe line shall be anchored at all curves and near the end. The toggle and flange connections shall be inspected before each placement to ensure tight joints. Air release valves shall be installed at high points to release entrapped air. The use of these valves will assist in preventing line plugging which in turn reduce accident possibilities.
- c) The work of cleaning a pipe line must be carefully done. Experienced workmen should be employed. There is danger of injury to workmen and also possibility of wrecking the scaffold. If and when necessary to open a pipe to clear it of an obstruction, the work must be carefully done in order that workmen may not be injured by concrete blown out by air pressure in the pipe.
- d) All workmen, when working in the vicinity of a pump crete machine should be provided with goggles and be required to wear them.

#### **SAND BLASTING:**

- 4.5.12 If sand and air blast are used, the sand blaster shall wear the regulation sand blaster's hood. If sand and water blast are used, operators of the blast shall wear goggles and protective clothing, operators of sand blast machines shall use care in directing the blast so that no one is caught in the blast or the rebound. All employees whose work requires that they be in the vicinity of the sand blasting operations shall wear goggles and respirators if a dry sand blast be used.

#### **RE-REINFORCEMENT:**

- 4.5.13 Reinforcing steel shall be piled on wood sills, and segregated as to sizes and lengths. Wood stakes shall be used to separate the various piles. Lanes and driveways shall be kept clear.
- a) The main accident hazards in bending reinforcing steel are due to sharp burrs in cutting and the whipping of long flexible rods. Tripping hazards will be present unless the rules of good house keeping are observed. Employees on this work should wear heavy gloves or hand pads. A leather or heavy denim apron is desirable. The area about the bender shall be kept clear for a distance equal to the length of the longest bar.
- b) All persons placing reinforcement steel where a falling hazard is present shall use safety belts. The tie-off rope may be short with a hook on the end to engage the steel. The common practice of a carrying wire for ties in a coil over one shoulder and under the opposite arm introduces hazards that can be obviated by carrying the wire on a reel that is worn on the belt.

#### **CEMENT HANDLING:**

- 4.5.14 Workmen engaged in handling bulk cement in confined places should wear tight-fitting goggles, approved respirators and protective clothing that fits snugly around the neck, wrists and ankles.
- 4.5.15 Workmen should be instructed to ensure personal cleanliness to guard against cement dermatitis and should be advised to report any susceptibility cement burns, Hand cream or petroleum jelly shall be provided for the use and protection of men handling cement.

#### **4.6 GROUTING, GUNTING & SHOTCRETING:**

- 4.6.1 Many of the hazards of grouting, guniting and Shotcreting operations are common to other construction operations, and are, therefore, covered by the above provisions, however, some of the principal hazards particularly incident to grouting and guniting are as given below:

##### **MACHINERY HAZARDS:**

- 4.6.2 All openings of grout mixers shall be adequately guarded. All flywheels, and all other moving parts including compressors drive belts, shall likewise be fully guarded.

##### **GROUT PIPE AND HOSES:**

- 4.6.3 All pipes or hoses used to convey the grout shall be of sufficient strength conforming to standard specifications to withstand the maximum pressures that may be reached during the operation. Pumps shall not be operated at pressures in excess of their rated capacities, or the safe working strength of the conveying system. All hose couplings shall be of standard types, and makeshift wire connections shall not be used. Pipes or hose laid along ladder ways catwalks, or ramps, shall be located at one side of the travelway in order to prevent tripping hazards.

##### **TOOLS:**

- 4.6.4 Proper tools for the work to be done shall always be provided and maintained in good condition. Only wrenches with jaws in proper condition shall be used. In using a wrench it should always be so placed that the pull tends to force the jaws further on the nut, and the user should make sure that his footing is secure before applying force to be wrench.

##### **SAFETY BOLTS:**

- 4.6.5 Men working in elevated position shall use suitable safety belts, boatswains chairs, or lines to guard against falling.

##### **GALLERY LIGHTING AND VENTILATION:**

- 4.6.6 All galleries or shafts, where foundation grouting is in progress, shall be adequately lighted and ventilated and reasonably free from water. Workmen should be provided with pocket flashlights for use in case the light circuit falls. All unused shafts, vertical stairwells, or other openings in galleries shall be barricaded.

##### **TELEPHONE SYSTEM:**

- 4.6.7 Wherever feasible, a telephone system should be used to provide positive and quick method of communication between all control locations or grout operations.

##### **GUNITING/SHOTCRETING:**

- 4.6.8 Only experienced men should be employed for guniting and Shotcreting, which is a special type of concrete work. The nozzle men and helper shall be provided with cup type safety goggles, and shall use them as protection against rebound material. The nozzle man should operate the nozzle so as to keep the rebounds at a minimum, and care must be taken not to trap the rebound on cleaning men in the blast.
- a) All scaffolds or platforms used in placing gunite shall be substantially built. No makeshift type of construction shall be permitted.

- b) All hoses and mixers shall be inspected daily and maintained in a safe working condition.
- c) All other workmen shall be excluded from the immediate working area.

#### **4.7 STRUCTURAL STEEL ERECTION:**

- 4.7.1 Heavy members must be maneuvered into places, but the short time required to make the erection joint at any connection does not ordinarily justify the erection of a rigid scaffold. When scaffold and ladders for use of the welders, riveters or erectors are necessary, the safety rules and regulations laid down in the manual should be followed.
- 4.7.2 All employees working in places where they are exposed to falling hazards should use safety belts.
- 4.7.3 Wherever workmen are exposed to unusual falling hazards from which it is impracticable to protect them by temporary floors or scaffolds, a safety net should be suspended below the place where men are working. Such nets shall be of 10 cms mesh and shall be made of Manila rope of at least 20mm diameter, with an outside or border rope of 18mm diameter. The border shall be provided with loops so that the nets can be attached to the structure or to each other.
- 4.7.4 Hardhats should be worn by employees working on or around erection operation and should be worn with chin straps fastened.
- 4.7.5 Gloves of a suitable type should be worn by all employees when handling steel cables or other rough or sharp edged materials.
- 4.7.6 Goggles should be worn when grinding, chipping, scrapping, caulking, cutting and heating rivets.
- 4.7.7 Good footwear should be worn by all employees and the soles should be kept free from mud and grease. Safety toe shoes should be worn at all times.
- 4.7.8 Workmen should stand in clear when derrick is sorting for shifting steel beams. The signal man and the operator should check to see that all men have cleared out before lifts are made.
- 4.7.9 Workmen should not stand, walk or work beneath suspended loads.
- 4.7.10 When guiding a beam, it should be so held that the hands do not get jammed against other objects.
- 4.7.11 When lifting an object in a group, one person should be designated to give the signal for all to lift or set the object down in unison.
- 4.7.12 When lifting, legs should be bent, body kept straight and leg muscles used for the lift.
- 4.7.13 There shall be no riding on steel that is being hoisted, no riding on the overhauling weights, hooks, cables or slings, nor sliding down on ropes or cables.
- 4.7.14 Public or workers in other trades operating close to steel erectors should be safeguarded at all times.
  - a) They should be cautioned and instructed on any exposure condition existing or that may arise and result in accident.
  - b) They should be advised to wear hardhat when required to work close by.
  - c) They should be instructed not to operate directly underneath scaffolds that are being used.
  - d) Red flags, or warning signs should be strategically posted to assist in cautioning and instructing others.
- 4.7.15 When receiving or unloading steel on job site, adequate protection such as barricades, sign flags and watch-man should be provided to protect the public.

#### **4.8 WELDING AND CUTTING:**

- 4.8.1 All welding and cutting shall be done by workmen who are thoroughly trained in the work or by trainees under competent supervision. Shields shall be placed around the work to protect persons from glare.
- 4.8.2 Welding and cutting shall be not done in the immediate proximity of flammable materials.
- 4.8.3 Welders and helpers shall wear non-combustible helmets and gloves during welding operations they should be careful to keep out of the line of sparks and hot metal; and they should wear clothing free from grease, gasoline, oil and other flammable materials.
- 4.8.4 Oxygen and acetylene cylinders or container shall never be permitted in small spaces of compartments where welding operations are in progress.
- 4.8.5 A helper shall always be at hand to shut off the gas in case of an accident when the welder is working in a space from where escape is difficult.
- 4.8.6 All welding operations should be carried out in a well-ventilated space. Where any considerable amount of welding is to be done, an exhaust system for carrying away the fumes should be installed. If brass, bronze or zinc is to be welded, a suitable respirator should be worn if exhaust system is not installed.
- 4.8.7 All torches, regulators, cylinders and other such equipments shall be of an approved design, regularly inspected and kept in good condition. Defective apparatus and equipment shall be removed services, replaced or repaired and re-inspected before again being placed in service. Repairs shall be made only by persons thoroughly familiar with such apparatus.
- 4.8.8 Welders and helpers shall wear suitable eye-protective devices during welding and cutting operations. Eyes exposed to welding or flashes should be washed with Rose water for better relief.

#### **FIRE PROTECTION:**

- 4.8.9 To avoid fire hazards the following additional precautions should be observed on all oxy-acetylene cutting and welding:
  - a) Keep hose and cylinder valves free from grease, oil, dust and dirt.
  - b) Keep cylinders away from stoves, furnaces and other sources of heat.
  - c) Only 'Gas Lighter' be used to light the torch.
  - d) Avoid use of oxy-acetylene flame in confined spaces.
  - e) Clean thoroughly with steam all containers that have been used for storage of flammable liquids, or wash with hot water and soda, and ventilate thoroughly before welding and cutting.
  - f) When testing for leaks use only soap water and watch for bubbles.
  - g) Valve protection caps shall be in place when cylinders are not in use.
  - h) All employees shall be made familiar with the location and proper use of fire extinguishers in their area of work.

#### **GAS CYLINDERS:**

Due care shall be taken while loading and unloading oxygen/acetylene gas cylinders.

- 4.8.10 Gas cylinders shall be kept up right in approved safe places where they cannot be knocked over, and well separated from radiators, furnaces and combustible materials. These safe places shall be painted with appropriate warning signs. Empty cylinders should be marked "EMPTY" and the valves closed. Loaded and empty cylinders should be kept in separate places.

- 4.8.11 Oxygen cylinders shall not be stored in close proximity to acetylene cylinders or other fuel gas inside the building and in no circumstances either oxygen or acetylene cylinders shall be stored under direct rays of sun or in places where excessive rise of temperature is likely to occur.
- 4.8.12 Tempering with or attempting to repair safety devices or valves of gas cylinders shall be prohibited and if trouble is experienced in any cylinder, a report shall be sent to the supplier forthwith describing the character of the trouble and particulars of the cylinder.
- 4.8.13 When acetylene cylinders are coupled, approved flash arrestors shall be inserted between each cylinder and the coupler block or between the coupler block and the regulator and only cylinder of approximately equal capacity shall be coupled.
- 4.8.14 Cylinders found to have leaky valves or fittings which the closing of the valve will not stop shall be taken into the open way from any source of ignition, and slowly drained of gas.
- 4.8.15 Electric magnets or direct slings shall not be used for handling cylinders and only special cradles shall be used.

#### **HOSES AND TORCHES**

- 4.8.16 The hose shall be specially designed for use on cutting and welding operations. Special care shall be taken to avoid interchange of oxygen and acetylene hoses, as the mixture of these gases is highly explosive. Some coloured code should always be used on each gas-red for fuel gas and black for oxygen. Glycerin shall be used for lubricating valves.
- 4.8.17 Some manufactures dust the inside of the hoses with fine talc, new hoses shall, therefore, be thoroughly cleaned on the interior before attaching to the torch. Compressed air shall never be used to clean hoses as it may contain oil from the compressor. Oxygen shall be used to clean oxygen hoses and acetylene shall be used to clean acetylene hoses.
- 4.8.18 Torches that leak at any connection get hot, or flash black shall not be used. Copper or brass wire shall be used to clean the tips. Hardwood sticks may also be used.

#### **GAS WELDING AND CUTTING OPERATIONS:**

- 4.8.19 The gas cylinders shall not be used unless fitted with the following: high pressure gauge on cylinder, reducing valve with pressure regulator and safety relief device, low pressure gauge for indicating pressure on the torch. The fuel gas and oxygen cylinder shall have left hand and right hand threads respectively so, that they cannot be interchanged.
- 4.8.20 Cylinder valves shall be opened only with hand wheels or tools, specially designed for that purpose and left in place while cylinders are in use. Cylinder valves shall be closed when not in use.
- 4.8.21 Since an explosion may occur oxygen/acetylene gas cylinders and fittings shall be kept away from oily or greasy substance and shall not be handled with oily hands or gloves. A jet of oxygen shall not be directed at oil surfaces, greasy clothes, or within a fuel oil other storage tank or vessel.
- 4.8.22 Under no circumstances shall acetylene be used at a pressure exceeding 1.1 kg per sq. cm. Oxygen pressure should always be such that acetylene does not flow back into the oxygen cylinder, as oxy-acetylene mixture is highly explosives.
- 4.8.23 After attaching the regulator and before opening the cylinder valve, the operator should see that the adjusting screw of the regulator is released. Oxygen should not be permitted to enter the regulator suddenly. The cylinder valve should be opened slowly.

- 4.8.24 Oxygen and acetylene hoses shall be tapped or clamped together at 1 meter intervals. Tape shall never be used to make repairs to hoses.
- 4.8.25 Oxygen or acetylene cylinders shall never be placed where they can be contacted by electric wires or with ground wires of electrical equipment. If electric arc welding is being done in the same vicinity, such precautions as necessary must be observed to make sure that the oxygen-acetylene gas equipment does not come in contact with electric arc welding equipment.
- 4.8.26 Closed tanks or containers shall never be welded until they are thoroughly cleaned, dried out and ventilated and it has been determined that they contain no explosive or harmful fumes.
- 4.8.27 No smoking shall be permitted by workmen or welders, while handling gas cylinders.

#### **ELECTRIC ARC WELDING AND CUTTING:**

- 4.8.28 The flash from electric arc welding is much more severe than that from oxy-acetylene welding, therefore, the welder shall have adequate eye protection and all persons working in the immediate vicinity should wear suitable coloured goggles unless the work is completely shielded.
- 4.8.29 Welding shall not be done in the presence of any person not amply protected from the flash. Persons should never look at an electric arc with the naked eye; to do so may cause serious eye injury.
- 4.8.30 Only heavy-duty electric cable with unbroken insulation shall be used, and all connections shall be water-proof. All connections shall be checked before welding is started, and frequent inspection shall be made during welding operations.
- 4.8.31 When it is necessary to couple several lengths of cable for use as a welding circuit and occasional coupling or uncoupling is necessary, insulated cable connectors shall be used on both the ground line and electrode holder line.
- 4.8.32 Frames of all electric welding machines operated from power circuits shall be effectively grounded.
- 4.8.33 When the operator has occasion to leave his work or stop work for any appreciable time, the power supply switch in the equipment should be opened and the unit shut down.

#### **4.9 PAINTING:**

- 4.9.1 Packages containing paints, varnishes, lacquers or other volatile painting materials shall be kept tightly closed when not in actual use, and shall be placed where they will not be exposed to excessive heat, sparks, flame, or direct rays of the sun.

#### **FIRE HAZARD:**

- 4.9.2 Most paint materials are highly combustible, and every precaution should be taken to eliminate danger from fire.
  - (a) No attempt should be made to heat paint materials except by placing containers in air, or water at moderate temperature. Dirty wiping rags, paint scrapings and paint saturated debris, which always involve the hazard of spontaneous combustion or ignition from other sources, should not be allowed to accumulate but should be collected and disposed of at frequent intervals.
  - (b) Smoking, open flame, exposed heating elements, and other source of ignition of any kind should not be permitted in paint stores or area where spray painting is done.
  - (c) Fire extinguishers of appropriate capacity shall always be at hand where flammable paint materials are being mixed, used or stored. Sandpails or

extinguishers of the carbon dioxide and carbon tetrachloride type are generally effective.

#### **PROTECTION FROM DUST AND FUMES:**

4.9.3 Apart from its explosiveness, air laden with dust or fumes may cause suffocation or other respiratory injury and may also have toxic effects through the skin or alimentary system. In painting, the dust comes chiefly from operations preparatory to painting such as sand blasting, scaling, scraping and brushing. Injurious fumes are given off when volatile paint materials are being mixed or applied specially when they are sprayed, Dust and fume nuisance is most dangerous in constricted spaces. Coal tar paint fumes are particularly obnoxious.

- a) Workmen must be provided with an ample supply of fresh air. If natural circulation is not adequate, artificial ventilation shall be provided. Ventilation shall be sufficient to carry away harmful accumulations of dust and fumes or workmen shall wear approved type respirators.
- b) Spray-painting operations shall be so confined as not to contaminate the air where other men are working. Spray gun operators should be required to wear clothing, which fits snugly at the ankles, neck and wrists and should wear gloves, goggles and respirators.

#### **HANDLING PAINT MATERIALS:**

4.9.4 Serious harm may result if the skin is exposed to prolonged contact with paint materials. Injury may take the form of burns or toxic effects resulting from absorption into or through the skin. It is well be avoid the use of pain solvents for cleaning the skin. These materials are not only injurious themselves, but they also carry poisonous ingredients of the pain into the pores of the skin. There area a number of protective creams which may be applied to the skin before exposure to paint substances, and which wash off easily in warm soapsuds, taking paint off with them. The use of protective creams by all painters is recommended.

Food shall never be placed where it might be exposed to fumes or dust from paint. Painters should clean their hands before eating.

#### **CREOSOTE**

4.9.5 Creosote is a lumber preservative and is closely related to carbolic acid. Extreme care is required to prevent contact with the skin or eyes, as it will cause severe burns. Protective cream or jellies should be used on exposed skin surface when engaged in handling creosoted materials. Affected parts of the body should be washed immediately, and in most cases the services of a physician should be secured.

## **CHAPTER 5**

### **PLANT AND MACHINERY**

#### **TOOLS**

##### **HAND TOOLS:**

- 5.1.1 All hand tools shall be kept in good conditions and used only for the purpose for which designed.
- 5.1.2 Tools having mushroomed/heads, spilt or defective handles, worn parts, or other defects that will impair their strength or render them unsafe for use, shall be removed from service and shall not be reissued until the necessary repairs have been made.
- 5.1.3 All sharp tools shall be kept in sheaths, shields, tool chests, or other containers when not in actual use, to protect the tools, the workers and other persons.
- 5.1.4 Tools shall not be left on scaffolds, ladders or overhead working spaces when not in use. When work is being performed overhead on scaffolds or ladders, containers shall be used to hold tools and prevent them from falling.
- 5.1.5 The practice of throwing tools from one location to another, from one employee to another or dropping them to lower levels, shall not be permitted. When it is necessary to pass tools or material under the above conditions, suitable containers and/or ropes shall be used.
- 5.1.6 Sharp-edged or pointed tools shall be carried in workmen's pockets.
- 5.1.7 Only non-sparking tools shall be used in location where sources of ignition may cause a fire or explosion.

##### **PNEUMATIC AND POWER TOOLS:**

- 5.1.8 (a) Hand tools and portable power tools should be inspected frequently for worn-out parts and connections. The sudden cessation of operation or the 'Kicking' or 'bucking' or such a tool may cause a serious accident especially when the operator is at an elevation exposed to the danger of falling.
- (b) In using heavy tools, it is best to support them where possible from some detached object or support in order to safeguard the operator's feet.
- (c) Loose clothing with free ends should be worn by operators of portable electric drills, reamers, etc. Neither should gloves be worn. Smooth overalls should be worn with the jumper tucked in.
- (d) All tools should be laid flat when not in use. They should never be kept standing on the nozzle or cutting edge.

##### **PNEUMATIC TOOLS:**

- 5.1.9 Pneumatic tools shall be used only by employees familiar with and properly instructed in their use.
- 5.1.10 Pneumatic tools shall be kept in good operating condition thoroughly inspected at regular intervals and particular attention given to control and exhaust valves, hose connections, die clips on hammer, and the chucks of reamers and drills.
- 5.1.11 Safety clips or retainers shall be installed on pneumatic impact tools to prevent dies and tools from being accidentally expelled from the barrel.
- 5.1.12 Pressure shall be shut off and exhausted from the line before disconnecting the line from any tool or connection.
- 5.1.13 Safety lashing shall be provided at connection between tool and hose.
- 5.1.14 Air hose shall be suitable to safely withstand the pressure for which it is intended. Leaking or defective hose shall be removed from service.

- 5.1.15 Hose shall not be laid over ladders, steps, scaffolds or walkways in such a manner as to create a tripping hazard.
- 5.1.16 The use of compressed air for blowing direct from hands, face or clothing is prohibited.

#### **POWER TOOLS:**

- 5.1.17 Power actuated tools shall be used only by persons who have been trained and instructed in their safe use.
- 5.1.18 Such supervision and safeguards as are necessary to prohibit their use by unauthorized persons shall be provided.
- 5.1.19 In electrically operated tools a three-conductor cord shall be used so that a ground wire may be taken off the tool. Even a slight electric shock may result in a sudden jump on the part of the operator resulting in a bad fall or a severe bump or fracture.
- 5.1.20 Connecting cord should have oil resistant rubber insulation. Protection against kinking should be provided by the use of the short coiled steel spring or rubber protecting tube securely fastened in place at the motor end. Care should be taken to see that strain on the wires is not transmitted to the connection at the terminal or binding post.
- (i) Never oil an electric motor to excess. This oil may prove harmful to cord insulation.
  - (ii) When a motor is in storage, coil the cord in a free coil, not around the motor.
  - (iii) Inspect cord frequently.
  - (iv) Do not lay cord on oily or chemically saturated floor while the tool is in use.
  - (v) Never pull on the cord when it is kinked or pinched.
  - (vi) Do not lower or lift the tools with the cord; use a small rope.
  - (vii) Do not leave the cord where a car or truck might run over it.
- 5.1.21 Premature starting of the motor presents a major hazard. Wherever possible, select tools that are equipped with safety devices to guard against this danger.
- 5.1.22 The use of power actuated tools is prohibited in explosive or flammable atmospheres.

#### **JACKS:**

- 5.1.23 Maximum working load shall be permanently marked on a jack and it shall be provided with a positive stop to prevent over travel unless this is impracticable in which case the jack shall carry a warning that a stop has not been provided. Every jack shall be thoroughly examined at suitable intervals depending upon service conditions.

#### **STORAGE BATTERY:**

- 5.1.24 Care shall be exercised in handling acids.
- 5.1.25 When preparing electrolyte the acid must be added slowly to the water until the solution has the proper specific gravity. Never bring an open flame near or allow sparks to shower on a storage battery as the gases produced are explosive under certain conditions.
- 5.1.26 Ordinary baking soda will prevent skin and eye burns, if used with water immediately after contact with the acid or electrolyte. If soda is not available, a weak solution of ammonia or plain clear water can be used.

#### **5.2 DRILLS:**

- 5.2.1 All drilling equipment shall be kept in good working order. Safe handling and lifting methods should be used.
- 5.2.2 Drills shall be stopped before greasing the machinery or moving parts.
- 5.2.3 Crown blocks shall be mounted securely and should be inspected frequently for loose connections.
- 5.2.4 Drillers should be required to block all finished drill holes over 10 cms in diameter before moving to a new location.
- 5.2.5 When using compressed air drills as well as other compressed air driven equipment the hose connections should be made only after the pressure has been released.
- 5.2.6 Electrically operated drills and all other electrically driven equipment should be provided with specially insulated power transmission cables with water-proof connections.
- 5.2.7 The use of gas engine or petrol engine driven drills underground shall be prohibited. If used on open air work the engine shall be kept in good operating condition, and the operator shall be trained in the use of the tool, including necessary precautions to avoid burns from the engine. The engine shall be stopped while filling the fuel tank.

### **5.3 ROPES, CHAINS AND SLINGS:**

- 5.3.1 The use of ropes, cables and chains shall be in accordance with the safe usage recommended by the manufacturer.
- 5.3.2 No chain or rope shall be used unless:
  - (a) It is of good construction, sound material, adequate strength and free from patent defects.
  - (b) Safe working load is plainly marked on it or an identification number is marked on it and the safe working load corresponding to this number is entered in a register maintained by the person-in-charge.

#### **CHAINS:**

- 5.3.3 All chains in continuous use shall be inspected once a month. Each chain shall be measured for length at each inspection. If a stretch of 2.7 cms in 1 metre is found, it shall be inspected for cracks. Any link that shows evidence of a crack or cross-section reduction by wear, nicks or cuts shall be removed. The reduced link section shall never be less than two-thirds of the original section.
- 5.3.4 No chain shall be used which has been broken and mended with a bolt, nor shall the end of the chain be bolted to the chain to form a loop.
- 5.3.5 Chains shall never be knotted, nor shall they be shortened by twisting the chain.
- 5.3.6 Before any strain is put on the chain, it shall be inspected to see that all links are lined up so that the pull is through the long diameter of the link.
- 5.3.7 All chains except those mentioned below shall be annealed once a year (6 months for 12mm bar chains and below) when in continuous use. This work shall only be attempted by competent men having the proper facilities for such work. The particulars of annealing or heat treatment and tests shall be entered in the register maintained for the purpose. It is recommended that all chains be returned to the manufacturer for annealing. Chains that need not be annealed are:
  - i) Bridle chains attached to derricks or masts;
  - ii) Chains made of malleable cast iron;
  - iii) Plate link chains;
  - iv) Chains of Steel; and

v) Pitched chains.

#### FIBRE ROPES:

- 5.3.8 Manila, sisal or hemp ropes are commonly used. For all normal use pure manila rope which is hard but pliant should be used. Sisal rope is 2 to 3 times as strong as manila rope, but its fibre are hard and stiff and have a tendency to splinter. Hemp ropes are as strong as manila ropes, but they are more soft.
- 5.3.9 The weight, breaking strength and safe working strength with a factor of safety of 8 of standard manila rope(3 strand) are given in the table below( The values are only suggestive):

1. **TABLE 5.1**

Diameter (mm)	Weight per feet (kgs)	Strength(Kgs)	
		Breaking	Working
6	0.97	270	35
12	0.110	1200	150
18	0.250	2500	310
25	0.400	4080	510
32	0.625	6100	770
40	0.890	8400	1050
50	1.610	14060	1760
65	2.485	21090	2630
75	3.600	29030	3630

When a table of strengths is not available an approximation of the working strength of rope may be obtained by squaring the numerator of the diameter in eighths and multiplying by 13. This gives strengths somewhat lower than those given in the table (e.g. if the dia of rope is 3/4" the dia in eighths will be 6/8" and working load will be found to  $(6)^2 \times 13$  lbs or 468 lbs).

- 5.3.10 Fibre ropes should be regularly inspected for wear and tear while in use to make sure that they are in good condition.
- 5.3.11 Fibre ropes should be protected from abrasion by padding when drawn over square corners or sharp rough surfaces. Frozen rope or wet rope subjected to acids or excessive heat should not be used. Ropes having dark or pinkish brown coloration on them due to exposure to acids shall not be used.
- 5.3.12 Suitable care should be taken while uncoiling, using and storing the fibre ropes. Sheaves should have a diameter not less than 36 times the diameter of the rope.

#### WIRE ROPES

- 5.3.13 Wire ropes have almost superseded fibre ropes and chains for hoisting and haulage purposes.
- (a) Standard hoisting rope consists of 6 by 19 wire strands and a fibre core made of iron, cast steel mild plow steel, plow steel or special plow steel.
- (b) The breaking strength of standard wire hoisting rope is shown in the following tabulation (The values are only suggestive):

2. **TABLE 5.2**

Breaking Strength (Tons)

(\*Factor of Safety=8 for working out safe working strengths)

Dia	Weight	Iron	Cast	Mild	Plow	Special Plow Steel
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(mm)	(kg/m)		Steel	Plow Steel	Steel	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
6	0.115	-	2.1	2.3	2.5	2.9
10	0.36	2.05	-	-	-	-
12.5	0.60	3.57	7.7	8.5	9.4	10.8
25	2.40	13.70	29.5	33.0	36.5	42.0
37.5	5.40	29.70	65	72.5	80.5	92.5
50	9.60	51.80	114	127.0	140.0	161.0

(c) Extra flexible hoisting rope, for use with smaller sheaves and drums, such as are usually found in derricks, consists of 8 by 19 wire stands and one fibre core. The breaking strength of this rope is approximately 87 per cent of the standard wire hoisting rope given in the preceding tabulation.

(d) Special flexible hoisting rope consists of 6 by 37 wire stands and one fibre core. It is extremely flexible and is specially adapted to high-speed service on cranes or where sheaves are small. The breaking strength of special flexible hoisting rope is approximately the same as that of standard wire hoisting rope.

5.3.14 Wire rope or cables shall be inspected by a competent person at the time of installation and once each week thereafter when in use.

5.3.15 No wire shall be used in hoisting or lowering if in any length of 8 diameters the total number of visible broken wires exceeds 10 per cent of the total number of wires or the rope shows signs of excessive wear, corrosion or other defect which in the opinion of the person who inspects it renders it unfit for use.

5.3.16 Wire rope removed from service shall be plainly marked or identified as being unfit for further use on cranes, hoists or other load carrying service and stored separately.

5.3.17 Wire ropes should be carefully uncoiled; coiled or used to prevent kinking; kinked strands damage the rope permanently. Even slight burning of rope reduces its load capacity because of drying out of lubrication.

5.3.18 Thimbles of proper size should always be used when a loop is formed at the end of a wire rope.

5.3.19 Socketing, splicing and seizing of cables shall be performed by qualified persons.

5.3.20 Connections, fittings, fastenings, parts etc. used in connection with ropes and cables shall be of good quality and of proper size and strength and shall be installed in accordance with recommendations of the manufacturer.

5.3.21 Drum sheaves and pulleys shall be smooth and free from surface defect such as cracks, kinks, destrandings etc. Drums, sheaves or pulleys having eccentric bores or cracked hubs, spokes or flanges shall be removed from service.

5.3.22 The ratio between rope diameter and sheave diameter should never be less than 27. Good practice favours a ratio of 45. Grooves of sheaves or drums should be 2mm larger than nominal rope diameter.

5.3.23 Running lines of hoisting equipment located within 2 metres of the ground or working level shall be boxed off or otherwise guarded, the operating area restricted.

5.3.24 Hooks, shackles, rings and pad eyes, U Bolts and other fittings shall be of proper size and those showing excessive wear or that have been bent, twisted or otherwise damaged shall be removed from service.

5.3.25 Slings, their fittings and fastenings, when in use shall be inspected daily by a qualified person for evidence of overloading, excessive wear or damage. Slings found to be defective shall be removed from service.

- 5.3.26 Slings shall be of proper construction and size for the load to be hoisted. Slings should not be attached to load as to provide an angle of less than 60° between sling leg and the horizontal. The efficiency varies with the angle of sling as follows:

**TABLE 5.3**

Angle (Degree)	Efficiency (Percent)	Angle (Degree)	Efficiency (Percent)
90	100	50	76
80	98	45	71
70	94	40	64
65	91	35	57
60	87	30	50
55	82	5	8.5

- 5.3.27 Single legged and reeved slings shall be avoided as far as possible except for small or unyielding loads under competent supervision.
- 5.3.28 Slinging should be done only by a crew trained for the purpose. Accidental over loading out of ignorance is frequently the cause of fatal injuries. For all normal practice 2 or 4 part sling should be used.
- 5.3.29 Suitable protection shall be provided between the sling and sharp unyielding surfaces of the load to be lifted.
- 5.3.30 The maintenance, repair and testing of slings shall be done only by qualified persons. Proper storage shall be provided for slings while not in use.

#### **5.4 CONVEYORS AND CABLEWAYS**

- 5.4.1 All conveyors shall be regularly inspected, repair and maintained.

##### **BELT CONVEYORS:**

- 5.4.2 Belt conveyors shall not be overloaded to the point where material fall off the belt. The walkway along the belts shall be kept free of materials. Where the walkway is one metre or more above the ground, a standard guard rail shall be installed.
- 5.4.3 Oilers shall never attempt to clean rollers while the belt is in motion. All oil and grease cups shall be so located that the oiler can service the cups without exposing himself to danger.
- 5.4.4 The following are the maximum allowable speeds of conveyor belts carrying sand, gravel and earth:

**TABLE 5.4**

Width of Belt Cms	SPEED (Mtrs per minute)
40 or less	80
40 to 60	130
60 or more	180

If the materials includes abrasive lumps such as crushed rock, the speed should be reduced by 15 meters per minute on narrow belts and by 30 meters per minute on wide belts of 60 cms or more in width.

- 5.4.5 Where trippers are used to control the discharge from belt, a device for throwing the propelling mechanism into neutral gear shall be installed at each end of the runway.
- 5.4.6 Whenever the belt crosses over a travelled way, either public or private, trays shall be installed to catch all spillage from the belt. The trays and their supports shall be

of ample strength to support a heaped load of wet materials and estimated weight of the cleaning crew. The trays shall not be so allowed to fill and patrolmen shall be particularly alert to prevent any spillage on travel ways.

- 5.4.7 Crossovers or underpasses with proper safeguards shall be provided for passage over or under all conveyors as necessary. Crossing over or under conveyors except where safe passageways are provided is prohibited.
- 5.4.8 All conveyor systems shall be equipped with such emergency signal devices that will provide reasonable safe control at all times. A system of signals to indicate the stopping or starting of belt shall be installed.
- 5.4.9 On all conveyors where reversing or runaway presents a hazards "anti-runaway" or "backup" stops or other safeguards shall be installed to protect persons and property from injury and damage.
- 5.4.10 Riding on conveyors shall be prohibited.
- 5.4.11 Baffles shall be placed across belts installed on steep grades to prevent material from rolling or bouncing off. The baffles shall be placed at intervals of about 30 meters on level belts.
- 5.4.12 Where conveyors are operated in tunnels, pits and similar enclosures, ample room shall be provided to allow safe access way and operating space for all workmen. Tunnels, pits and similar enclosures shall be provided with adequate drainage, lighting, ventilation and emergency controls including escape ways where it is necessary for person to work in or enter such areas.
- 5.4.13 All openings to hoppers, chutes, bins etc., shall be protected to prevent unauthorized entry or persons from stepping or falling into them.

#### **CABLEWAYS:**

- 5.4.14 While all cables shall be carefully inspected everyday special care shall be taken in the inspection of the button line at the buttons, where all grease shall be removed and the cable examined for broken wires and abrasions. Button line failures generally occur at the buttons, due to the impact of the carriers, and abrasion caused by the rebound of the carriers when they strike the buttons. Rubber and steel ferrules should be installed on each end of the buttons as shock absorbers.
- 5.4.15 Breaking of cable occasionally results in fatalities or serious injuries. Button line failures are some times caused by jamming of the carriers when they are picked up by the carriage, thus putting more strain on the line than it was designed to withstand. On some cableway systems, one end of the button line is anchored to a counter weight, which maintains a constant predetermined tension in the line. Jamming of the carriers causes a lifting of the counterweight. A limit switch can be installed above the normal travel of the counterweight, which will sound an alarm in operator's booth.
- 5.4.16 In night operations, clearance lights shall be installed on high blocks or other high points under cableway to assist the operator in maintaining proper clearance over such points.
- 5.4.17 Hoist rope failures are most serious. Regular inspection and recording of all repairs and performance is extremely necessary. Unloading of buckets should be slow so that the cable does not surge. Heavy surges cause hoist rope to twine around main cable and get excessive grinds. Sometimes the rope slips out of the pulley in the fall blocks and strands get severely damaged.
- 5.4.18 Hoist ropes must be replaced immediately on damage.
- 5.4.19 Carriers should be of such design that they do not slip.
- 5.4.20 Where any cableway passes above any place on a site of operation where persons employed habitually work or pass and are liable to be injured by objects falling from

such cableway, appropriate screens shall be provided or other steps shall, so far as is reasonably practicable, be taken to protect such persons from being so injured.

## **5.5 LIGHT EQUIPMENT**

### **WORKING MACHINERY:**

- 5.5.1 Safe means shall be provided for the removal of sawdust, chips and shavings from all woodworking machinery.
- 5.5.2 A mechanical or electrical power control shall be provided on each machine, in a protected position, to prevent accidental starting and to enable the operator to cut off the power without leaving his position at the point of operation.
- 5.5.3 Circular rip saws shall be provided with hood guard, splitter and anti-kick-back device. All circular saws shall be provided with hood guards.
- 5.5.4 The peripheral length of circular saws and cutters beneath tables shall be guarded or sides of table enclosed.
- 5.5.5 All planners and jointers shall be guarded and have cylindrical heads with throats in the cylinder.
- 5.5.6 All swing cut off and radial saws or similar machines, which are drawn across a table shall be equipped with limit stops to prevent the cutting edge of the tool from extending beyond the edge of table.
- 5.5.7 Band saw bladders shall be fully enclosed except at point of operation.
- 5.5.8 The use of cracked, bent or otherwise defective parts such as saw blades, cutters and knives is prohibited.
- 5.5.9 A push stick, block or other safe means shall be used in all close operations on saws, jointers and other machines having high speed cutting edges.

### **GRINDING WHEELS:**

- 5.5.10 All grinding wheels shall be protected by hoods.
- 5.5.11 New wheels must be inspected carefully to see that they have not been damaged in transit.  
Suspending the wheel and tapping it with a light wooden mallet will reveal any cracks.
- 5.5.12 New wheels should be carefully fitted on the spindles.
- 5.5.13 Wheels should be tested frequently for balance and if out of round shall be 'trued-up' by a competent workman. If after being 'trued-up', if a wheel is still out of balance, it shall be discarded for use as a power operated wheel.
- 5.5.14 Wheels used in wet grinding shall never be left standing in water as the water soaked portion may throw the wheel out of balance.
- 5.5.15 Wheels designed for hand operation shall never be used on power-operated grinders.
- 5.5.16 Grinding on the site of the wheel in hazardous and shall not be permitted.
- 5.5.17 Direct current motors shall not be used for operating grinding wheels unless equipped with some approved device to prevent over speeding if the shunt field circuit should be accidentally broken.
- 5.5.18 When any person is wholly or mainly employed on a grinding wheel and substantial quantities of dust are given off during grinding, such grinding shall not be performed without a hood or other appliance so constructed, arranged, placed and maintained as substantially to intercept the dust throw off and a duct of adequate size so arranged as to be capable of carrying away the dust by means of a fan or other efficient means.

### **METAL WORKING MACHINERY:**

- 5.5.19 Lathes, punch presses, shapers, milling machines and other metalworking tools shall be fully shielded or guarded.
- 5.5.20 Point of operation guards shall never be made inoperative by plugging the switch buttons or otherwise interfering with the operation of the guards.
- 5.5.21 Chain hoists or other power lifting devices shall be provided to light heavy objects to the operating table of the machine.
- 5.5.22 Cleaning the hands with cutting oil or compound is dangerous and should be prohibited as small particles of metal in the oil may penetrate the skin.
- 5.5.23 Operators shall never wear gloves, loose clothing, loose sleeves or ties.
- 5.5.24 Articles made of celluloid or other flammable material shall not be worn.
- 5.5.25 Every machine shall have a brush conveniently placed for the operator to brush shavings or bits or metal from the machine. The bare hand should never be used for this purpose.
- 5.5.26 Goggles suitable for the work shall be worn and safety shoes are recommended.

### **5.6 LIFTING APPLIANCES**

#### **GENERAL:**

- 5.6.1 Every lifting appliance and every part thereof including all working gear and all plant or gear used for anchoring or fixing such appliances shall:
  - (a) be of good mechanical construction, sound material, adequate strength and free from patent defects;
  - (b) be properly maintained; and
  - (c) as far as construction permits, be inspected at least once every week by a competent person and a report of the result of inspection entered in a register maintained for the purpose.
- 5.6.2 Every lifting appliance or part thereof during the course of erection, working or dismantling shall be properly supported and all the fixing and anchoring arrangements shall be adequate and secure.

#### **TRAVELLING:**

- 5.6.3 When lifting appliances with travelling and slewing motions are used, there shall be 2 meters clear distance between any part of the appliance in its extreme position and any guardrails or fencing or other fixtures; provided that if it is impracticable to maintain this distance, all reasonable steps shall be taken to prevent the access of any person to such guardrail, fencing or fixture.
- 5.6.4 Where minimum clearance of 2 meters from nearby structures is not possible, suitable warnings like peal of gongs should be sounded before crane commences to move.
- 5.6.5 A minimum distance of 2 meters must be maintained between the boom and all power lines of feeds during the travelling operation of a mobile crane.
- 5.6.6 Under no circumstances an attempt should be made to raise electric wires by a person other than the employee of the Electricity Department.

#### **PLATFORMS AND CABINS:**

- 5.6.7 Platforms for persons driving or operating the cranes or for signallers shall be provided with safe means of access and the floors of such platforms shall be close planked or plated and be of sufficient area for persons employed thereon.
- 5.6.8 The driver of every power driven lifting appliance shall be provided with a suitable cabin for protection from the weather and it should be so constructed as to afford

ready and safe access to parts of the lifting appliance in the cabin which required periodic inspections and maintenance and it shall not be so placed that it prevents the driver from having clear and unrestricted view of all lifting operations outside the cabin.

#### **DRUMS AND PULLEYS:**

- 5.6.9 Every chain or rope which terminates at the winding drums of a lifting appliances shall be properly secured thereto and at least two drums of such chains or rope shall remain on the drum in every operation.
- 5.6.10 Drums or pulleys of lifting appliances shall be of suitable diameter in relation to the sizes of chains or wire ropes used round them.

#### **BREAKES, CONTROLS AND SAFETY DEVICES:**

- 5.6.11 Every crane, crab and winch shall be provided with an efficient brake, or brakes and dogs or pawls or other safety devices which will prevent the fall of the load when suspended, and by which load can be effectively controlled whilst being lowered.
- 5.6.12 While a load is suspended from a crane, hoist or derrick, the operator shall not leave his position at the control until the load has been lowered to the ground.
- 5.6.13 Side pulls shall not be made with cranes or derricks. The crane or derrick boom shall be directly over the load to be lifted.
- 5.6.14 Riding on loads, hooks, hammers, materials hoists, or buckets shall not be permitted. Loads, booms and buckets shall not be swung over the head of the workmen.

#### **CRANES WITH DERRICKING JIBS:**

- 5.6.15 On every crane having a derricking jib there shall be provided and maintained an effective interlocking arrangement of sound construction between the derricking clutch and the pawl sustaining the derricking drum except where:
  - (a) The hoisting drum and the derricking drum are independently driven;
  - (b) The mechanism driving the derricking drum is self-looking.

#### **STABILITY:**

- 5.6.16 Mobile lifting appliances shall not be used on soft or uneven surface or on a slope in circumstances in which the stability of appliance is likely to be effected unless adequate precautions are taken to ensure its stability.
- 5.6.17 No fixed crane shall be used unless it is securely anchored or adequately weighted as to secure stability.
- 5.6.18 Every travelling jib crane on rails shall be provided with guards to remove any loose material from the track, which shall be provided with effective stops at the end.
- 5.6.19 When the stability of the crane is secured by means of removable weights a diagram or notice indicating the position and amount of such weights shall be fixed on the crane where it can readily be seen.

#### **COMPETENT PERSONS FOR OPERATION:**

- 5.6.20 Lifting appliance shall not be operated except by a person trained and competent to operate that appliance except that for the purpose of training it shall be permissible for any person to operate the appliance provided such a person is under the direct supervision of a competent person. Operators shall have the following additional qualifications:
  - i) Be able to read and understand the signs, notices, operating instructions and signal code used.
  - ii) Be not less than 21 years of age.

- iii) Must have had a physical examination within one year to determine that they have no deficiencies of eyesight or hearing or they are not subject to epilepsy, heart failure, or similar ailments that would be detrimental to safe operation of equipment.
- 5.6.21 If the person operating a lifting appliance has no clear view of the load, there shall be appointed signallers to give signals to the operator.
- 5.6.22 The crane operator should recognize signals from only one person designated as signalman.
- 5.6.23 Every crane operator and rigger should be made familiar with the rules and regulations for crane operators and standard crane signals for the safe operation of the crane.

#### **TESTING AND EXAMINATION:**

- 5.6.24 All lifting appliance shall be tested and thoroughly examined one in every period of four years and thoroughly examined once every year by a competent person.
- 5.6.25 Any lifting appliance, to which any substantial alteration has been carried out, shall not be taken into use unless it is tested and thoroughly examined by a competent person.
- 5.6.26 Results of all tests and thorough examinations shall be entered in a register to be maintained by the occupier.

#### **MARKING OF SAFE WORKING LOADS:**

- 5.6.27 The safe working load or safe working loads and a means of identification shall be plainly marked:
  - i) upon every crane, crab and which, and;
  - ii) upon every pulley block, gin wheel, shear legs or derrick pole or mast used in the raising or lowering of any load.
- 5.6.28 Every crane fitted with a derricking jib shall:
  - i) have plainly marked upon it the safe working loads at various radii of the jib and the maximum radius at which the jib may be worked; and
  - ii) be fitted with an accurate indicator, clearly visible to driver, showing the radius of the jib at any time and the safe working load corresponding to the radius.
- 5.6.29 No jib crane with fixed or derricking jib shall be used unless it is fitted with an automatic load indicator which gives an efficient sound signal when the load lifted is in excess of safe working load at that radius, provided that if the requirements of clauses 27 and 28 are complied with, fitting of an automatic load indicator shall not be required.
- 5.6.30 The lifting appliance, shear legs or derrick pole or mast or any part thereof shall not be loaded beyond the safe working load except for the purpose of testing when it may be loaded to such amount as may be decided by a competent person for carrying out such tests.

#### **SCOTCH GUY OR TOWER DERRICK CRANES:**

- 5.6.31 No scotch derrick, guy derrick or tower derrick shall be used in any work unless:
  - a) It is of good construction, sound material, adequate strength and free from any defect that will endanger life of any worker.
  - b) All parts including anchorage have been thoroughly examined before erection and thoroughly examined and tested after erection by a competent person and results

- of such examination and test are entered in a register maintained for the purpose by the occupier; test load shall be 25 per cent above the maximum load to be lifted.
- 5.6.32 Maximum load to be lifted by the crane shall be marked on the crane in a position where it can readily be seen by the crane driver.
- 5.6.33 The jib of a scotch derrick crane shall be erected between the back stays of the crane.
- 5.6.34 No load which lies in the angle between the back stays of a scotch derrick crane shall be moved by the crane.
- 5.6.35 No crane shall be used for lifting a load, which is in excess of maximum load marked on the crane.
- 5.6.36 In Scotch and Tower Derrick cranes, appropriate measures shall be taken to prevent foot of king post being lifted out of the socket while it is in use, and in Guy Derrick crane, guys shall be suitably spaced to ensure stability of the crane.
- 5.6.37 The crane operators should test the brake for full load capacity, at least one a week while the crane is in use. Such testing every day, before the work is started, is recommended.

## **5.7 RAIL TRACKS, LOCOMOTIVES AND HAULAGE TRUCKS:**

### **RAIL TRACKS AND LOCOMOTIVES:**

- 5.7.1 Every rail track shall rest on a firm and even foundation and at each end it shall be provided with adequate stop blocks or buffers.
- 5.7.2 In any line of rails on which locomotive truck or wagon moves, there shall be adequate clearance so that persons are not liable to be crushed or trapped between walls, fixed structures, fencing or stack of materials, and a passing locomotive truck or wagon or any part of load thereon and where such clearance is not reasonably practicable, suitable recesses at a distance of not less than 6 metres along the line shall be provided and effective arrangements for warning any person of the danger, of being liable to be crushed or trapped, shall be made.
- 5.7.3 Every locomotive truck or wagon shall be fitted with effective brakes and a sufficient number of suitable springs or scotches shall be provided for the use of persons employed on the movement of trucks or wagons which shall be in good conditions and used whenever necessary.
- 5.7.4 Where any person is likely to be endangered by the movement of locomotive truck or wagon:
- a) The locomotive shall be fitted an effective warning device;
  - b) The person in charge of movement of locomotive truck or wagon shall see that adequate warning is given before the locomotive truck or wagon is moved; and
  - c) When the locomotive truck or wagon is approaching any crossing, blind spot or any place where the driver of the locomotive is unable to see clearly a sufficient length of the track, the driver shall give adequate warning by means of a suitable sound signal.
- 5.7.5 Except where adequate handholds and footholds are provided, no person shall be required or permitted to ride on a buffer or on a running board or in any locomotive truck or wagon.
- 5.7.6 No person shall be required or permitted to remain on any vehicle or on any truck or wagon during the loading of loose material by means of grab, excavator or similar appliance if he is endangered by so remaining.
- 5.7.7 Where hauling locos have to work to dangerous limits, the travel of the loco beyond the safety limit should be arrested by stops of adequate height and strength.

## **HAULAGE TRUCKS:**

- 5.7.8 Vehicles shall be maintained in good mechanical condition. Special attention should be given to brakes, horns, tyres, steering mechanism and signalling devices. Drivers of motor vehicles should be on the alert to observe defects and report them to take further appropriate action for their correction. Drivers shall operate vehicles with regard to proper protection of the mechanism hereof.
- 5.7.9 Constant attention, concentration and alertness shall be exercised by the driver while operating a motor vehicle. Driving will not be undertaken under fatigue, or drowsiness and drunkenness as they impair driving ability to a high degree until the condition causing the impairment has been relieved.
- 5.7.10 Every vehicle should carry notices of warning pasted in at a conspicuous place, containing the following instructions:
- a) Persons travelling the vehicles, on duty, should sit at a safe place in it.
  - (b) They should not stand in the vehicle or sit on the top of side planks of the body.
  - (c) No person should get down from or get into the vehicle when it is in motion.
- 5.7.11 The log book of every vehicle should have a fly leaf containing the following instructions to the driver and the crew:
- i) No person should be allowed to enter in the vehicle or travel in it except under written orders of the concerned Executive Engineer or any other officer in charge or his subordinate duly authorised in this behalf. Any infringement of this rule shall render the driver and the cleaner liable for punishment.
  - ii) They should be prohibited from standing in the vehicle or sitting on the top of the side planks of the body.
  - iii) No person should be allowed to get down from or get into the vehicle while it is in motion.
  - iv) The cleaner should act as the conductor of a transport bus and should look after the safety of the crew and others travelling in it.
- 5.7.12 No driver of a truck shall back up a truck unless assisted by a signal man who shall have a clear view of the driver and the area behind the truck during each backing up operation.
- 5.7.13 As far as possible, loaded trucks should not be backed on gradients. Stumbling blocks must always be put in place to prevent the truck from moving down a gradient.
- 5.7.14 In slopes it should be ensured that every heavily loaded trailer is not used behind light hauling units.
- 5.7.15 The driver should not drive too fast, should avoid distractions and drive defensively. The driver should not attempt to overtake another vehicle unless he can plainly see far enough ahead to be sure he can pass safely; proper horn signal should be given before passing.
- 5.7.16 Before crossing rail-road track, the driver should reduce speed, look in both directions along track and proceed across track only if it is safe to do so.
- 5.7.17 Material shall not be loaded in a truck so as to project horizontally beyond the sides of the body and any material projecting beyond the front or rear shall be indicated by a red flag during the day and a red light during the night.
- 5.7.18 Workmen shall not be transported standing in the truck with their heads above the cab where they are liable to be injured by low hanging wires, tree branches etc.
- 5.7.19 Loaded haulage trucks shall not be allowed to carry labourers on the top of their load.
- 5.7.20 Where any vehicle is used for tipping material into any excavation or pit or over the edge of any embankment or earthwork, adequate measures, such as the provision of

suitable blocks, shall be taken where necessary so as to prevent such vehicle from overrunning the edge of such excavation, pit, embankment or earthwork.

## **5.8 BOILERS AND COMPRESSORS:**

### **BOILERS:**

5.8.1 All steam boilers shall comply with provision of Boiler Regulations.

### **UNFIRED PRESSURE VESSELS:**

5.8.2 Other pressure vessels shall comply with the provisions of rules framed under section 31 of Factories Act, 1948.

### **AIR COMPRESSORS:**

5.8.3 Air Compressors should not be operated at speeds greater than those listed by the manufacturer, as explosions of compressors are sometimes due to excessive speeds.

5.8.4 Compressors should be securely anchored to firm foundation as the sudden and frequent variations in load cause considerable vibration and impose severe shocks upon the equipment.

5.8.5 At a pressure of 8 kgs per square cms as the temperature in an air cylinder may reach 200 degrees C., which is sufficient to volatilise. The lubricating oil shall, therefore, have high flash points.

5.8.6 Every air compressor shall be equipped with an automatic mechanism so arranged that the compressor will automatically stop its air compressing operation before the discharge pressure exceeds the maximum safe working pressure allowable on the weakest portion of the system to which the compressor is attached.

### **AIR RECEIVERS:**

5.8.7 Under no circumstances should a receiver be installed without a pressure guage, and a relief or safety valve so proportioned and adjusted that the pressure will never exceed the maximum allowable working pressure of the tank by more than six percent.

5.8.8 A drain pipe should be installed at the lowest point of every compressed air tank or receiver.

5.8.9 No stop valve should be placed in the air line between the compressor and the air receiver unless spring loaded safety valves are installed between the compressor and the stop valve.

5.8.10 Gauge and valves shall be regularly inspected.

5.8.11 Air receiver shall be drained and cleaned of oil and water every six months or more often if so specified by State laws.

5.8.12 The manhole or hand hole shall be opened every six months and the inside of the receiver checked.

5.8.13 When operating under dusty conditions, the relief valve shall be checked at least every month.

## **5.9 HEAVY MACHINERY:**

### **INSPECTION:**

5.9.1 Before any machinery or mechanized equipment is put into use on the job, it shall be inspected by a competent person and determined to be in safe operating condition. Continued periodic inspection shall be made at such intervals as necessary to ensure its safe operating condition and proper maintenance.

- 5.9.2 Any machinery or equipment found to be in an unsafe operating condition shall be tagged at the operator's position, labelled "Out of order" "Do not Use", and its use prohibited until unsafe conditions have been rectified.
- 5.9.3 Inspections or determinations shall be made to ensure that clearance and load capacities are safe for the passage or placing of any machinery or equipment, before permitting passage or placement.

#### **OPERATIONS:**

- 5.9.4 Machinery and mechanized equipment shall be operated only by qualified and authorised personnel.
- 5.9.5 Riding on equipment by unauthorized personnel is prohibited.
- 5.9.6 Getting off or on any equipment while it is in motion is prohibited.
- 5.9.7 Machinery or equipment requiring an operator shall not be permitted to run unattended. Where practicable, equipment left unattended shall be locked to prevent starting by unauthorized persons.
- 5.9.8 Machinery and equipment shall not be operated in a position where any part of the machine, suspended loads or lines can be brought closer than 3 meters from exposed high voltage lines unless the current has been shut off and positive means taken to prevent the lines from being energized. A notice of this requirement shall be posted at operator's position.
- 5.9.9 When rubber-tyred vehicles equipped with boom or ginpoles are being operated in the vicinity of power lines, a chain shall be attached to the metal frame with the loose end dragging on the ground.
- 5.9.10 Machinery or equipment shall not be operated in a manner that will endanger person or property nor shall the safe operating speeds or loads be exceeded.
- 5.9.11 An operator shall not be permitted to operate any machinery or equipment for more than 8 hours in any one day without a consecutive 8 hours interval of rest.
- 5.9.12 Operators and all workmen in the immediate vicinity shall avoid use of loose clothing, large open sleeves, bulky trousers etc.
- 5.9.13 No person shall take rest or sleep near a parked machine.
- 5.9.14 While going from one place to another, it shall be ensured that the culverts, etc. to be crossed are strong enough to take the heavy load passing over.

#### **GUARDING, SAFETY DEVICES:**

- 5.9.15 (i) Every moving part of prime mover, headrace and tailrace of every water wheel and water turbine and stockbar which projects beyond the head stock of a lathe shall be securely fenced.  
(ii) Unless they are in such position of such construction as to be safe to every person as they would be if they were securely fenced, every part of an electric generator, a motor or rotary converter; and every part of transmission machinery and every dangerous part of any other machinery shall be securely fenced.  
(iii) The fencing to be provided in (i) & (ii) shall be of substantial construction regardless of whether the machinery they are guarding are in use or not.
- 5.9.16 All hot surfaces of equipment, including exhaust pipes, or other lines which may be subject to high temperatures, exposed to contact by persons or which create a fire hazard, shall be suitably guarded or insulated.
- 5.9.17 Fuel tanks shall be located in a manner which will not allow spills or overflows to run into engine, exhaust or electrical equipments.
- 5.9.18 No guard, safety appliance, or device shall be removed from machinery or equipment, or made ineffective except for the purpose of making immediate repairs,

lubrication or adjustments and only after the power has been shut off. All guards and devices shall be replaced immediately after completion or repairs and adjustments.

- 5.9.19 Suitable protection against the elements, falling or flying objects, swinging loads, and similar hazards shall be provided where appropriate for operation of all machinery or equipment. All glass used shall be "Safety Glass".
- 5.9.20 A warning device or services of a signalman shall be provided where there is danger to persons from moving equipment, swinging loads, buckets boom etc.
- 5.9.21 All machinery or equipment not equipped to prevent over-loading or excessive speed shall have safe load capacities and/or operating speed pasted at the operators position.
- 5.9.22 Stationary machinery and equipment shall be placed on a firm foundation and properly secured in place before being operated.

#### **REPAIRS AND MAINTENANCE:**

- 5.9.23 Except for testing, trial or adjustment which must necessarily be done while the machinery is in motion, all machinery and equipment shall be shut down and positive means taken to prevent its operation while repairs or manual lubrications are being made.
- 5.9.24 Any guard or safety device removed or ineffective shall be replaced or resorted to safe operating condition immediately after completion of work, which required its removal.
- 5.9.25 All repairs on machinery, equipment, or parts thereof which are suspended or held apart by use of slings, hoists, or jacks, shall also be substantially blocked or cribbed before men are permitted to work underneath or between them.
- 5.9.26 Heavy machinery, equipment, or parts thereof which are suspended or held apart by use of slings, hoists or jacks, shall also be substantially blocked or cribbed before men are permitted to work underneath or between them.

#### **EXCAVATORS-SHOVELS, DRAGLINES ETC:**

- 5.9.27 Before starting the machine, a thorough visual inspection shall be made. All cable clamps, etc. shall be checked for excessive wear. The oiler should be off the rig before starting the engine. An operator should know where his oiler is at all times.
- 5.9.28 All persons must be kept beyond the range of cap swing. No one except operating personnel shall be permitted on the equipment while it is operating.
- 5.9.29 Operators and helpers should not indulge in unnecessary conversation while the equipment is in operation.
- 5.9.30 Walkways in or about the cab of any dragline or shovel shall be kept free of loose tools, grease containers, or other materials that might fall and present a tripping or failing hazard.
- 5.9.31 Operator, when loading materials into trucks, shall exercise such precautions as necessary to prevent injury to the truck driver or damage to the truck. If the truck is not provided with a substantial cab or shield, the driver should leave his seat while the truck is being loaded. Preferably the truck shall be loaded over the sides or rear and not over the truck cab.
- 5.9.32 Shovel dippers and dragline buckets should be lowered to the ground when the operator leaves the machine or during greasing operations.

- 5.9.33 Power shall be disconnected when repairs are made to electric shovels, draglines etc. Trailing cables must be kept off the ground, and should be handled only with insulated hooks. The framework of a shovel shall be grounded.
- 5.9.34 When being operated in soft or unstable ground, draglines and power shovels shall be supported by mats, heavy planks, or poles so as to distribute the load and prevent any danger of overturning.
- 5.9.35 No smoking shall be allowed during refuelling and engines must not be running while being refuelled. Open lights, flames, or sparks must be eliminated. Lights on the equipment shall be of an approved vapour proof type. Fuel which is carried to the machine by hand must be transported in an approved type of safety can. The type of safety can to be used, should be approved by the Chief Engineer-in-Charge of the Project.

#### **DUMPERS:**

- 5.9.36 Dump trucks shall be maintained in first class working condition and regularly checked and inspected. Brakes shall be kept in efficient working condition. Trip and winding mechanism shall be daily examined and adjusted.
- 5.9.37 Dump truck used for hauling rock or overburden, which is loaded by shovels etc. should be equipped with safe overhead protection for the cab. Dump trucks shall not be moved backwards unless the driver has a clear view of the area behind the truck or has the assistance of a "spotter" or "pitman."
- 5.9.38 No person shall be allowed to work on a truck with the body in a raised position until after the truck body has been securely blocked in position.
- 5.9.39 While dumping by rear or side dumpers the workers shall stand clear of the vehicle and if sticky or heavy material is being dumped, dump hooks shall be used or the car clamped so that it cannot overturn.

#### **TRACTORS AND BULLDOZERS:**

- 5.9.40 Before starting the machine, a thorough visual inspection shall be made in order to minimise accidents. Check cables and cable clamps etc. for excessive wear. Check the position of other workmen before starting the machine. Use extreme caution when coupling to draw bar.
- 5.9.41 Only one person, the operator, should ride on a tractor the only exception being when the operator is teaching a student to drive and this should be done on a relatively smooth ground.
- 5.9.42 Tractors should never be left unattended with the engine running and brakes not set. When it is necessary to park tractors on slopping ground, they shall be securely blocked and the brakes set.
- 5.9.43 Operators of bulldozers should not drive with the blade raised so high that vision ahead is obscured and when the operator leaves the machine, the blade shall be lowered to the ground.

#### **MOTOR GRADER:**

- 5.9.44 The pre-starting inspection should be performed by checking foot and hand brakes.
- 5.9.45 When operating near obstructions, use low gear. The speed when travelling to or from the job site should not be excessive. When operating on a public highway, the blade tips should be flagged. Keep a sharp lookout at all times for other vehicles, cattle and pedestrians.
- 5.9.46 When parking the machine, the blade should be turned inside the frame and lowered to the ground, set the hand-brake, and block the wheels if on an incline.

The transmission may be left in low gear after the engine has been shut off, if additional braking force is needed.

**PILE DRIVERS:**

- 5.9.47 All plant, equipment and devices used in connection with pile driving work shall be constructed, installed, inspected, maintained and operated so as to prevent danger.
- 5.9.48 Every pile driver shall be firmly supported on heavy wood sills or substantial cribbing and shall be securely and safety guyed at all times and when steam or air hammers used, the hose shall be securely lashed to the hammer to prevent it from slipping, should a connection break.
- 5.9.49 While inserting the piles, the hammer shall be blocked in the leads and when a pile driver is not in use, the hammer shall be scotched at the bottom of the leads by means of a scotch.
- 5.9.50 Only pile driving crew members and authorised person shall be permitted in the actual work areas during driving operation.
- 5.9.51 Dogs on pile driver hoist drums, the automatically disengage either by relieving the load or rotating the drum shall be prohibited.
- 5.9.52 A safety lashing shall be provided for all hose connections to pile driver hammers, pile ejectors, or jet pipes.
- 5.9.53 Hanging or swinging leads of pile drivers shall have fixed ladders. Employees shall be prohibited from remaining on leads or ladders while pile is being driven.
- 5.9.54 Fixed pile driver leads shall be provided with decked landings having guard rails and toe boards. Fixed ladders or stairs shall be provided for access to landings and head blocks.
- 5.9.55 Landing or leads shall not be used for storage of any kind.
- 5.9.56 Pile driver leads shall be provided with stop blocks to prevent the hammer from being raised against headblock.
- 5.9.57 Pile hammers shall be lowered to bottom of leads while pile driver is being moved.
- 5.9.58 Suitable guys, outriggers, thrustouts, counter-balances or rail clamps, shall be provided as necessary to maintain stability of pile driver rigs.
- 5.9.59 Taglines shall be used for controlling 'unguided piles' and 'flying hammer.'
- 5.9.60 Hoisting of steel piling shall be done by use of a closed shackle or other positive mean of attachment that will prevent accidental disengagement.
- 5.9.61 When steam driven hammers are used, the boiler shall comply with all requirements of boiler code. The steam hose and connection shall be inspected frequently and the hose shall be lashed in place, so far as practicable, to minimize the danger of men being scalded in case of a broken connection. All steam lines shall be controlled by shut off valves located within easy reach of the operators.

**CHAPTER 6**  
**MISCELLANEOUS**

**6.1 STORAGE OF MATERIALS:**

- 6.1.1 All materials in bags, containers or bundles stored in tiers shall be stacked, blocked, interlocked, and limited in height so that it is stable and otherwise secured against sliding or collapse.
- 6.1.2 Inflammable liquids and grease shall be stored in a 'NO SMOKING' area and properly separated from other stored materials.
- 6.1.3 Used lumber shall have all nails withdrawn before it is stacked for storage.
- 6.1.4 In withdrawing sand, gravel, and crushed stone from frozen stockpiles, no overhanging shall exist at any time.
- 6.1.5 Materials dumped against walls or partitions shall not be stored to a height that will endanger the stability or exceed the resting strength of such walls and partitions.
- 6.1.6 Persons working in hoppers or on high piles of loose material shall be equipped with life lines and safety belts.

**6.2 ATMOSPHERE IN CONFINED PLACES:**

- 6.2.1 In every working place where persons are required to work in a confined place, adequate ventilation by the circulation of fresh air shall be provided and no person shall be allowed to enter any place where there is reason to apprehend that the atmosphere is poisonous or asphyxiating unless the person wears a suitable breathing apparatus and is equipped with life line held by a person stationed for the purpose in safe place.
- 6.2.2 When workers are employed in sewers and manholes which are in use, it shall be ensured 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 accidents to the public.
- 6.2.3 There shall also be provided in a suitable position and readily available sufficient and appropriate rescue apparatus including:
  - i) Suitable breathing apparatus;
  - ii) Suitable reviving apparatus; and
  - iii) Suitable safety belts of sound material with ropes of adequate length and strength.

All such equipment and apparatus shall be in charge of a competent person conversant with their use and he shall be available at all time while any person is

working in the confined place. All such equipment shall be properly maintained, tested and examined at intervals of not more than one month.

### **6.3 PREVENTION FROM DROWNING:**

- 6.3.1 Where adjacent to the site of any operation there is water, into which a person employed, in the course of his employment, is liable to fall with risk of drowning, suitable rescue equipment shall be provided and maintained in an efficient state and steps shall be taken for the prompt rescue of any such person in danger of drowning.
- 6.3.2 The rescue equipment shall include life saving skiffs properly maintained with life vests and life buoys of approved type with 16 metres of 10mm rope attached.
- 6.3.3 Life preservers, vests or belts shall be worn by all persons while working:
  - (a) On floating pipeline, pontoons, rafts, float stages etc;
  - (b) On open deck-floating plant not equipped with bulwarks, guardrails or other life lines;
  - (c) On structures extending over or adjacent to water except where proper guardrail or safety belts and life lines are provided;
  - (d) Working alone at night where there are potential drowning hazards regardless of other safeguards provided and;
  - (e) In skiffs, small boats or launches except when inside of enclosed cabin or cockpit.
- 6.3.4 Life preservers or working vests shall have a buoyancy of at least 7.5 kgs. When new and shall be removed from service when buoyancy decreases below 5.75 kgs.
- 6.3.5 Walkways and structures extending over or immediately adjacent to water shall be provided with ring buoys of 7.5 kgs buoyancy at intervals of not more than 60 meters.

### **6.4 FIRE PREVENTION AND PROTECTION:**

#### **FIRE PREVENTION:**

- 6.4.1 All construction areas and storage yards should be kept clean and well arranged.
- 6.4.2 A clear space of 15 metres around the outer boundary of sawmill and lumber storage area may be provided. All lumber should be stored in sections with firebreaks with a distance of 15 metres between consecutive sections.
- 6.4.3 All combustible waste material, wood scalings, soiled rags etc. shall be removed daily and burden in suitable burning areas. The saw mill and lumber yard shall be kept free from accumulation of combustible debris.
- 6.4.4 Fires, welding, flame cutting shall in general not permitted in combustible areas. Fires and open flame devices shall not be left unattended.

- 6.4.5 Smoking shall be prohibited in all flammable material storages viz. carpentry, paint shops, garages, services stations etc. "No smoking" signs should be posted on all such areas.
- 6.4.6 Accumulations of flammable liquids on floors, walks etc. should be prohibited. All spills of flammable liquids shall be cleaned up immediately.
- 6.4.7 Smoke pipes from Diesel Engines passing through roof of combustible material e.g. in compressor stations at dam site and quarry shall be insulated by asbestos. All joints of smoke pipe should be riveted, welded or otherwise securely fastened together and supported to prevent accidental displacement or separation. The joints should not be leaky.
- 6.4.8 Flammable liquids, lubricants etc. should be handled and transported in safety containers and drums which can be kept tightly capped.
- 6.4.9 Petrol or other flammable liquids with a flash point below 100°F shall not be used for cleaning purposes.
- 6.4.10 Oxygen cylinders shall not be stored with combustible materials.
- 6.4.11 All electric installations should be properly earthed. Repairs should not be made on electrical circuits until the circuit has de-energized.

#### **FIRE FIGHTING ARRANGEMENTS;**

- 6.4.12 Fire extinguishers and fire buckets, painted red, shall be provided at all fire hazardous locations viz. Batching and Mixing Plant, which Houses, Workshops. Store yards, Saw-Mill, Switch Gear Room, Compressor Stations, Office establishments etc. The extinguishers shall be inspected, serviced and maintained in accordance with manufacturer's instructions. The inspections shall be evidenced by notations on tag attached to the extinguisher.
- 6.4.13 Where building and establishments are located in or near cities or towns, definite arrangements shall be made to ensure protection by the established municipal fire department. In more isolated locations, it will be necessary to provide for and install complete fire fighting facilities including provision for fire tenders commensurate with the number, size and importance of buildings, equipments, or supplies to be protected.
- 6.4.14 Full reliance should never be placed on portable hand extinguishers as all of these have a very limited capacity. Water, in ample amounts and under adequate pressure, should always be available for fire fighting.
- 6.4.15 Where a group of buildings are located beyond the range of protection from a public water supply, the installation of water system for private fire protection may be warranted. The following design factors should be considered in the planning of a private water supply. The standard fire stream is recognised as 1155 litres per minute. Multiple streams of 1155 litres must be provided for protection of important groups of buildings. While the daily domestic consumption is basis used in the design of a domestic type of water system, additional capacities should be

provided for use during fire emergencies. For example, two standard fire streams (2310 litres per minute) discharged for 1/2 hour amount to 69,300 litres of water. Therefore, additional water storage for fire use must be provided. A loop system of hydrants from two directions with a reduction of friction losses and a resultant higher water pressure for fire-fighting purposes. No underground pipes that are a part of the system should be smaller than 15 cms in diameter and valves should be provided for shutting of the domestic connection outside of all building served. Hydrants should not be over 120m apart and so located that not less than two hose streams concentrate on any building. Hydrants in cold climate should be designed and installed to prevent freezing. Two 60mm outlets with standard 5 hose thread should be used for all private hydrants. It is good practice to provide hose houses at hydrants in a private water supply system. The houses should be equipped with a minimum of 60 metres of 60mm hose and accessories, including axes, spanner, wrench and other tools.

6.4.16 Excavation facilities and fire exit may be provided at all locations featuring the hazards.

6.4.17 Siren or other suitable fire alarm arrangement shall be made on all projects. Warning signs may be posted at all locations featuring fire hazards.

6.4.18 All staff shall be conversant with the use of all types of fire extinguishing apparatuses.

6.4.19 Demonstrations and training in fire fighting shall be conducted at sufficient intervals to ensure that sufficient personnel are familiar with and are cable of operating fire fighting equipment.

## **6.5 FIRST AID AND MEDICAL CARE:**

6.5.1 At every work site suitable arrangement for rendering prompt and efficient first aid to injured persons shall be maintained under the guidance of the Medical Officer in charge of the project.

6.5.2 First aid appliances including an adequate supply of sterilised dressings and sterilised cotton wool shall be maintained in a readily accessible place. The appliances shall be kept in good order and they shall be placed under the charge of a responsible person who shall be readily available during working hours. The minimum requirements of the first aid kit shall be as under:

10 cms compressed bandage - 12 Nos.

5 cms compressed bandage - 12 nos.

2.5 cms adhesive plaster - 1 reel

1 metre triangular bandage - 3 Nos.

Spirit Ammonia Aromatic - 1 bottle  
(4 ounces)

Tannic acid jelly - 1 tube

Tincture iodine	- 1 bottle (2 ounces)
Tourniquet	- 1 No.
Forceps	- 1 No.

When purchasing first aid kits, dust proof containers should be specified.

- 6.5.3 Where work sites are remote from regular hospitals an indoor ward in charge of a Medical Officer with such nursing staff as may be necessary shall be provided with one bed for every 250 workers.
- 6.5.4 Adequate identification and directional markers shall be provided to readily denote location of all first aid stations and hospitals.
- 6.5.5 An ambulance shall be provided to transport seriously injured persons to the hospital.
- 6.5.6 Small crews working at a distance from the project headquarters or from the main body of workmen shall be equipped with standard first-aid kits and at least one man in each crew shall have had first aid training.
- 6.5.7 Adequate lighting, heat, water and ventilation shall be provided in the first aid station and/or hospital.
- 6.5.8 The Medical Officer in charge of the project should be responsible for issuing special instruction indicating certain 'do's and 'don'ts' on subjects like sunstroke, heat exhaustion, sanitation, out-break of epidemics etc.

## **6.6 PERSONAL PROTECTIVE EQUIPMENT:**

- 6.6.1 The following safety equipment shall be provided to workers as required and their use enforced:

Rubber boots; hard toe safety boots; hard hats; safety belts; goggles for stone or metal grinders, stone chippers, gas welding aprons; respirator shields; manila ropes and slings for life lines; gloves; flashlights; battery lamps, magazine shoes; safety nets; boatswains chairs; helmets, life and ring buoys.

- 6.6.2 Items of personal wear shall be maintained in serviceable condition and shall, before being reissued to other employees or returned to stores be cleaned, sterilised, inspected and repaired, if necessary.
- 6.6.3 Loose and frayed clothing, hand rings loose watch chains etc. shall not be worn around moving machinery or other sources of entanglement.
- 6.6.4 The use of personal safety equipment as occasioned by the type of work being performed has been indicated in relevant places of this Manual.

## **6.7 MISCELLANEOUS**

### **SECURITY OF LOADS**

- 6.7.1 Every receptacle used for raising or lowering stone, bricks, tiles, slates, or other objects shall be so enclosed, constructed or designed as to prevent the accidental fall of such objects.
- 6.7.2 All gears, tools, goods or loose material shall be properly loaded into the bucket or receptacle in which they are being raised or lowered and if necessary, properly secured or effective precautions shall be taken by enclosure or otherwise to prevent their fall.

#### PROJECTING NAILS:

- 6.7.3 No timber or material with projecting nails shall be used in any work in which they are a source of danger to such persons.

#### DANGER FROM COLLAPSE OF STRUCTURE:

- 6.7.4 When any work is carried on which is likely to affect the security or stability of a building or structure or any part thereof and endanger any persons employed, all practicable precautions shall be taken by shoring or otherwise to prevent collapse of the building or structure or fall of any part thereof and thus remove the cause of danger to such structures and the persons employed.

#### HANDLING OF CORROSIVE MATERIALS:

- 6.7.5 For persons engaged in handling of corrosive materials adequate equipment shall be provided.
- 6.7.6 Where in connection with any grinding, cleaning, spraying or manipulation of any material there is given off any dust or fume of such character and to such extent as is likely to be injurious to the health of persons employed, all practical measures shall be taken by securing adequate ventilation or by the provisions and use of suitable respirators or otherwise to prevent inhalation of such dust and fume.

#### LEAD COMPOUNDS AND OTHER POISONOUS SUBSTANCES;

- 6.7.7 Men below the age of 18 years and women shall not be employed on the work of painting with products containing lead in any form. Wherever men above age of eighteen years reemployed on the work of lead painting, the following precautions shall be taken:
- (a) No paint containing lead or lead products shall be used except in the form of paste or ready made 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 dry rubbed and scrapped.
  - (c) Overalls shall be supplied to the workmen and adequate facilities shall be provided to enable the working painters to wash during the cessation of work.

(d) While lead, sulphate of lead, or product containing these pigments shall not in painting operation, except in the form of pastes or paints ready for use.

(e) Cases of lead poisoning, and suspected lead poisoning shall be immediately notified, and shall be subsequently verified by a member appointed by the competent authority of project.

(f) Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

6.7.8 Lead compounds shall not be used in the form of a spray in the interior painting of the structures.

6.7.9 Road work:

Workers employed on mixing asphalt materials shall be provided with protective footwear and protective goggles.

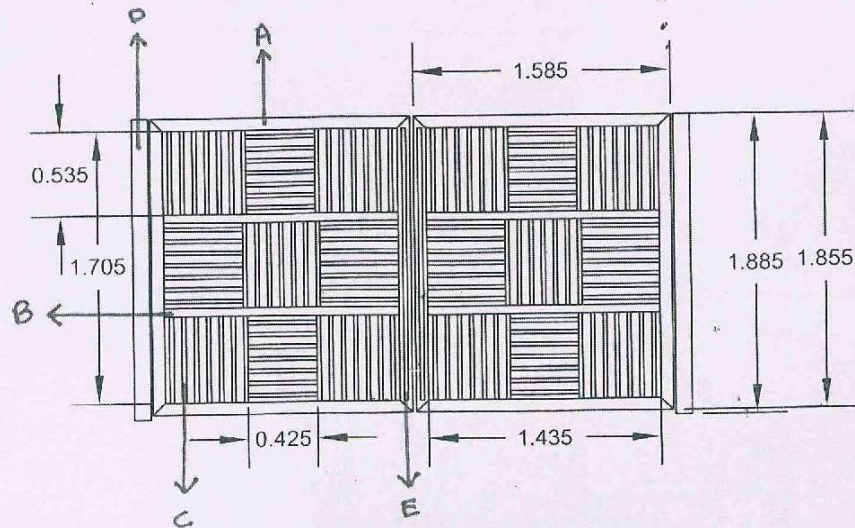
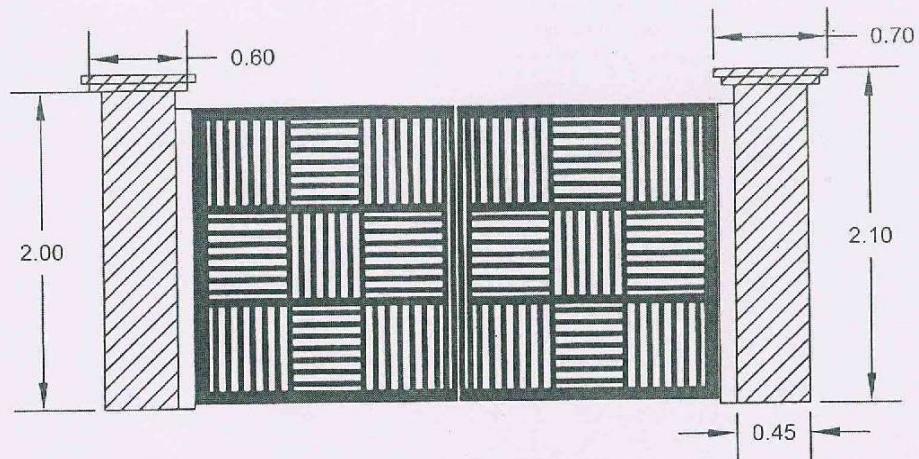
Stonebreakers shall be provided with protective goggles and protective clothing and seated at sufficient safe distance from each other.

## **SECTION-IX**

## **DRAWINGS**

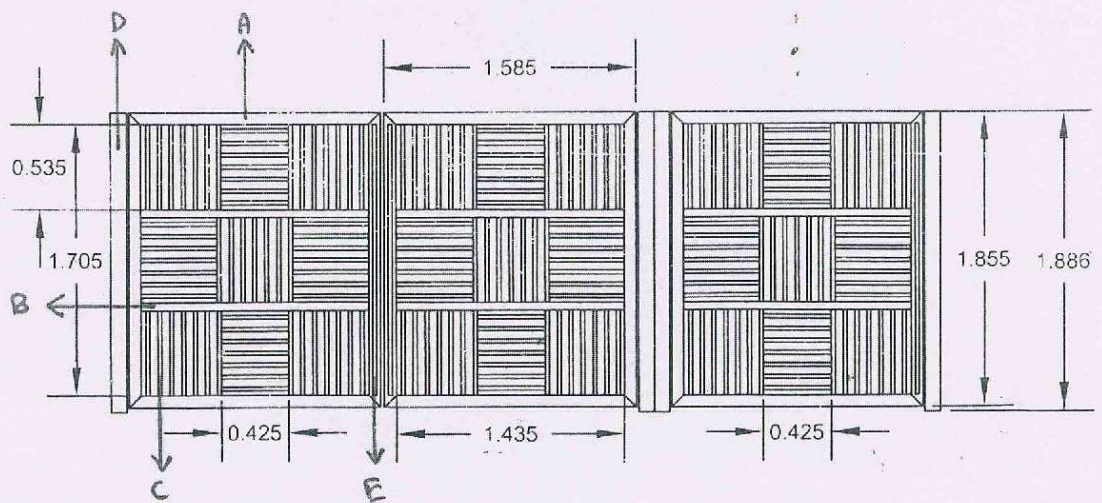
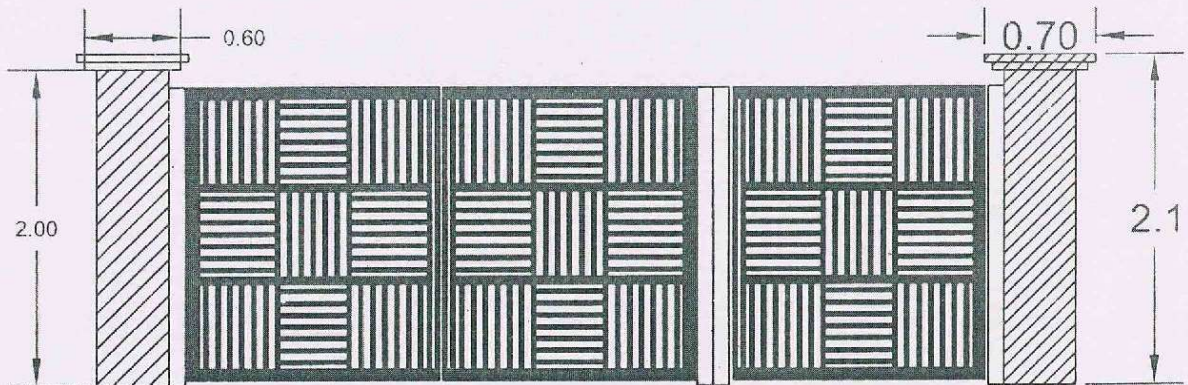
# TENTATIVE DRAWING

GANUA SADAN



# TENTATIVE DRAWING

NHPC BHAWAN



*Handwritten signature*