



# MANUAL FOR CIVIL ENGINEERING WORKS

**COAL INDIA LIMITED**  
**Civil Engineering Department**  
**10, N.S.Road, Kolkata-700 001**

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**MANUAL FOR CIVIL ENGINEERING WORKS**

**PART - I**

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**PART-I**

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## **1. DETAILS AND SYSTEM REVIEW OF CIVIL ENGINEERING WORKS**

### **1.01 DETAILS OF CIVIL ENGINEERING WORKS HANDLED :**

The activities of Civil Engineering Discipline in Coal India are of diverse nature and are broadly categorized below:

#### **1.01.1 ENABLING WORKS :**

- Temporary approach road
- Temporary hutments for office/ camp living
- Temporary water supply arrangements
- Erection platforms for HEMM
- Temporary stores & workshops etc.

#### **1.01.2 INFRASTRUCTURES:**

- Office buildings and rest house.
- Pit head bath & cap lamp room
- Incline mouth roofing & walling
- Headgears & shaft sinking
- Haulage rooms & fan houses
- Haul roads & permanent approach roads
- Regional/ Central stores
- Regional/ Central workshops
- Railway sidings & wharf walls

#### **1.01.3 HEAVY INDUSTRIAL STRUCTURES:**

- Coal handling plants including RLS
- Coal preparation plants
- Winder house
- Check dams
- Bridges
- Underground transport system

#### **1.01.4 TOWNSHIPS:**

- Residential buildings
- Colony & approach roads
- Water supply arrangements
- Sewerage/ drainage systems
- Plantations & landscaping

**1.01.5 WATER SUPPLY:**

Intake arrangements (intake wells, weirs etc.)  
 Treatment plants  
 Treated water storage & distribution  
 Overhead reservoirs

**1.01.6 WELFARE BUILDINGS:**

Worker' institute  
 Schools & colleges  
 Shopping centers  
 Post office & Banks  
 Hospitals & Dispensaries  
 Recreation Centers & Clubs  
 Canteens  
 Auditoriums & Stadiums

**1.01.7 TOWNSHIP ENGINEERING :**

Maintenance of residential & office buildings  
 Maintenance of welfare facilities  
 Maintenance of water supply arrangements  
 Maintenance of sewerage/ drainage systems  
 Maintenance of roads.  
 Maintenance of Industrial Buildings & Structures.  
 Organising festivals, sports meet, foundation stone laying ceremony etc.

**N.B. The work of Town Engineering/ Administration at HQ level will be under CGM(C)/ GM(C) of the company. The practice of entrusting this Engineering function to other departments is to be discontinued immediately.**

**1.01.8** In addition to the aforesaid main activities of Civil Engineering Department, the Civil Engineering personnel have to undertake various day to day activities such as organising festivals, sports, fairs, foundation laying ceremonies, community development works etc. apart from day to day repairs and maintenance works of townships, water supply, infrastructures, heavy industrial structures etc.

**1.02 System Review of Civil Engineering Works :**

All Civil Engineering schemes whether in CIL or elsewhere need decision making at different stages of planning and construction. Any fresh civil engineering project commonly designated as "Original works" must necessarily be built up through the following stages:



### **1.02.1 Preparation of a Draft Scheme & Preliminary Estimate**

Before commencement of any work, a draft scheme is first prepared with brief outline of the work and the probable cost assessment of the scheme is made through a preliminary estimate. These are mostly prepared either on a "Prorata" basis based on similar works in the past or on "Thumb rule" basis. This exercise is carried out for budgeting purpose & appraisal of competent authority.

### **1.02.2 Detailed Design and Planning**

Once the technical sanction, financial concurrence and administrative approval for a work have been obtained the next step consists of preparation of detailed design and planning for the original works. Such a detailed design requires in-depth information of the site, details of functional requirements, subsoil report, loading etc.

With the above information's one can proceed with preparation of detailed design and drawings for the scheme. At this stage the designer has to work out in detail the final configuration of the various elements, their sizes, specifications etc.

### **1.02.3 Preparation of Detailed Estimate**

Once the designs and drawings are ready and the specifications for the various items of work have been selected, the detailed estimate for the works is prepared. The unit cost for the items of work is normally obtained from what we call the schedule of rates, which will be discussed in detail later.

### **1.02.4 Optimization of cost**

For the purpose of cost optimization, often a number of alternative schemes, satisfying the basic functional requirements, have to be tried and the cost worked out to select the most cost effective solution for the given situation

### **1.02.5 Preparation of Tender Documents & Notice Inviting Tender**

For execution of the works tender documents are prepared and outside agencies are invited to submit their bids through tenders for which due notifications are to be made through Notice Inviting Tender or NIT

### **1.02.6 Evaluation of Tender**

Proposals from contractors are received against NIT and the comparative merits of the various bids are ascertained through proper evaluation done by a regularly constituted committee called the "Tender Committee".

### **1.02.7 Award of Works**

Based on the recommendation of the Tender Committee and approval thereof by Competent Authority the work is awarded to the successful bidder for execution of the work as per the conditions laid down in the tender.

### **1.02.8 Monitoring of Progress**

The progress of work is checked from time to time to ensure that the project is on schedule. Interim payment is made to the contractor against progress of work at site.

### **1.02.9 Inspection of Works**

During the execution and also after the works have been completed the work should be jointly inspected at various stages with the contractor/ contractor's representative.

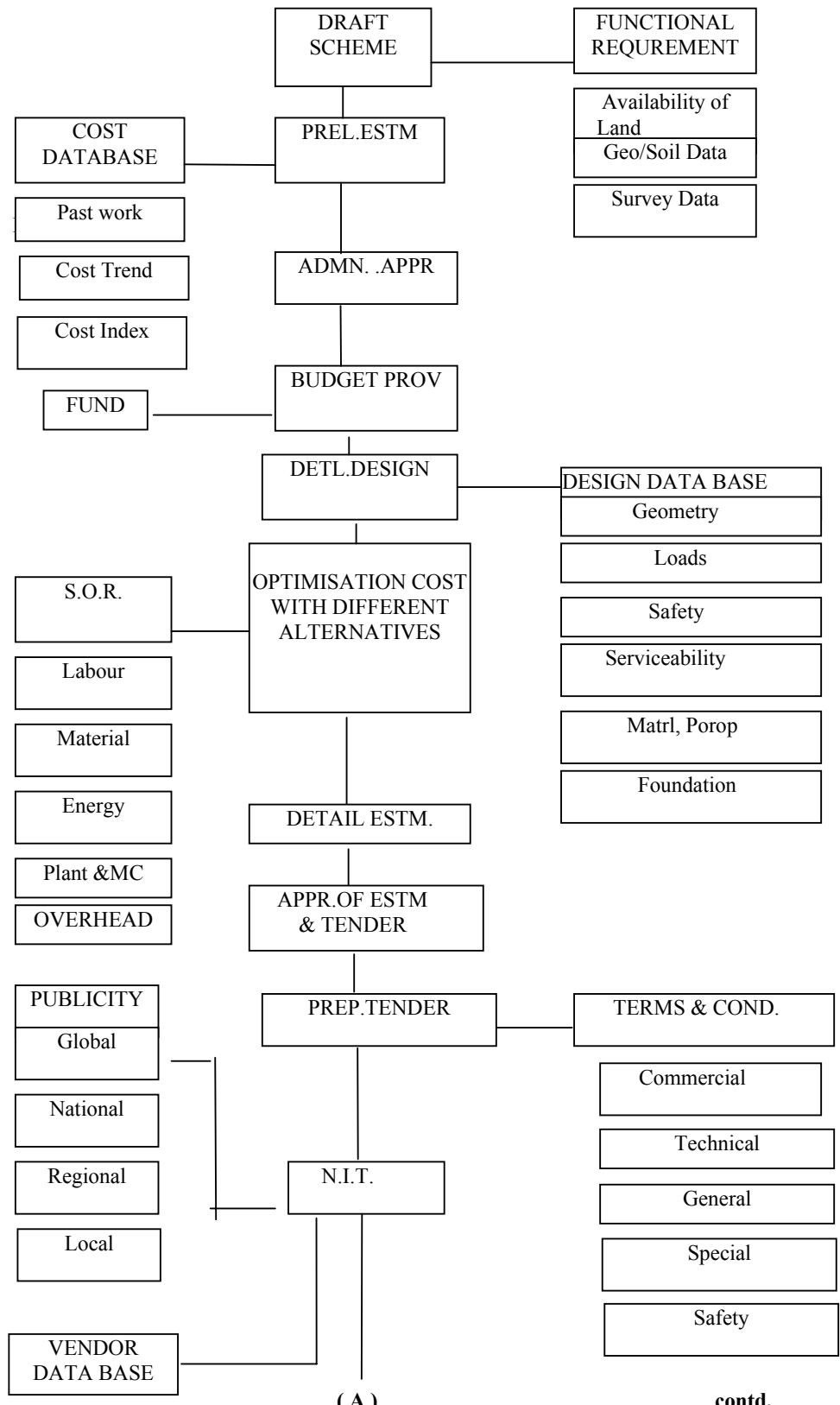
After completion of the works details of the completion estimates and standard measurements are entered in the Asset Register of the department for future maintenance works.

### **1.02.10 Acceptance of Works**

After the works have been completed as per the drawings and specifications, the contractor informs the company and hands over all the assets to the custody of the Company. The Company issues a completion certificate to the contractor after inspection.

The above are the sequence of stages for fruitful completion of Civil Engineering projects particularly for original works. The various stages described above is summarized in a system flow sheet showing the linkage of the various stages which are described in the Chapters that follow.

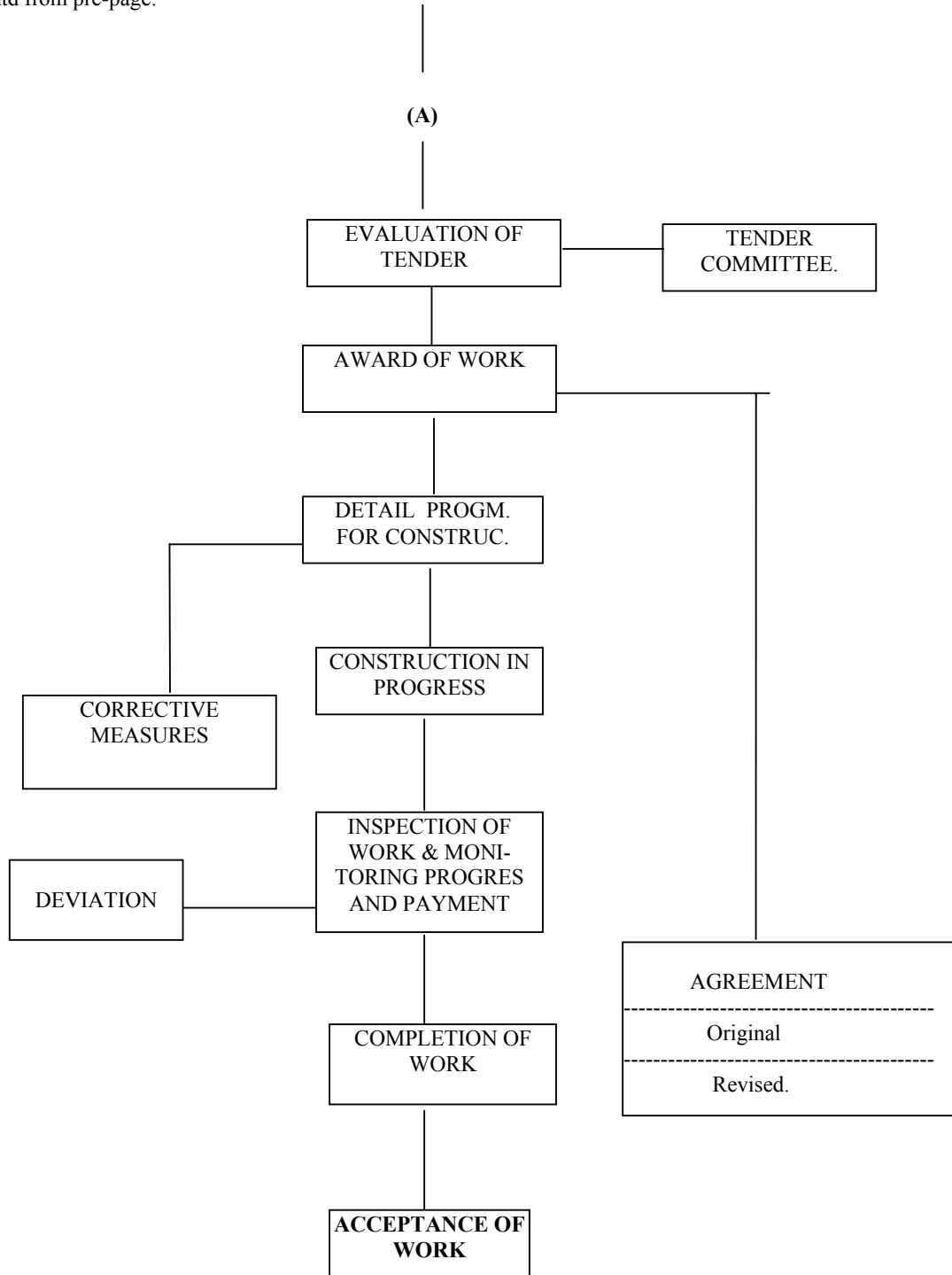
**SYSTEM FLOW CHART**



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## **2. PREPARATION OF ESTIMATES**

**2.00** Before commencement of any work it is necessary that estimates are prepared for the purpose of obtaining technical sanction/ financial concurrence/ administrative approval. Estimates as already explained are of two kinds.

### **i) Preliminary Estimates**

### **ii) Detailed Estimates**

#### **2.01 Preliminary Estimates**

It is necessary to know the financial implications of a proposed work before it is taken up and so a preliminary estimate is prepared for the purpose based on a draft scheme of the proposed work. The preliminary estimate is the basis for seeking administrative approval and it is often prepared on prorata basis based on cost of similar work done in past or on rough estimate/ thumb rule basis. For building works this may be based on cost per unit area or per unit volume of covered space. For haul road, this may be cost per kilometer. Preliminary estimates may be based on similar works executed in the past. Guidelines for making preliminary estimates are given at Appendix-I.

Before according administrative approval sanctioning authority must know:

a) Approx. and feasible cost (of a building for example) on broad basis but with due regard to foundation and drainage problem, architectural and structural requirements, cost expected due to local special condition, special construction method and technique etc. which should be supported by a proper report.

b) Approx., cost required for architecture and engineering and interior and landscape designs.

c) Approx., cost of interior furnishing, electrical installations, meeting the requirements of Building Bye-laws of local bodies.

d) For industrial structures 10% extra is to be added to the estimated cost derived on the basis of prevalent SOR

e) For underground works estimate is to be prepared on analysis based on wage board rates for labour component, prevalent material cost and working conditions.

f) In every estimates, a provision of 3% shall be made for contingent expenditure, which will be controlled by CGM(C)/ GM(C) who will use this fund on meeting all urgent and miscellaneous items including temporary structures and purchase/ hiring of vehicles and other adjunct services required for effective supervision and control of the works. CGM(C)/ GM(C) can at his discretion delegate this power to the subordinate officer.

## 2.02 Detailed Estimates for Original Works:

In general the detailed site investigation and preparation of plans, designs and estimates for a work should not be taken up unless the administrative approval has been obtained or the work is included in the proposed budget. For preparation of the detailed estimates, the site investigation along with subsoil exploration, whenever required, is necessary for proper design of foundations and for arriving at realistic cost estimates to avoid changes during execution warranting revised estimates. The detailed estimates shall be prepared based on current/-updated schedule of rates (SOR) as previously explained. For the items of work not covered by the SOR, analysis of the rates shall be prepared based on market rates of materials and labour and these are to be incorporated separately in the estimate.

All detailed estimates should consist of: -

- i) A report covering a brief description of the project and Budget Provision & Allocation (Appendix-2)
- ii) Design and Drawings.
- iii) Scope of Work
- iv) Rates
- v) Detailed estimates of the quantities with detailed statement of measurements (Appendix-3)
- vi) Analysis of rates for non-schedule items
- vii) Abstract of cost indicating value of work based on SOR and analysed rates (Appendix-4)
- viii) Method of execution
- ix) Requirement of important materials, special T&P.
- x) Requirement of labour
- xi) Availability of clear working site.
- xii) Brief Specifications
- xiii) Deviation from approved/ standard norms & justification thereof, in regard to areas, specifications, amenities etc.
- xiv) Soil report, wherever required
- xv) Period of execution

xvi) Detailed estimate shall include elements of Appendix-5 in order to ensure that no point has been left out at the time of planning.

### **2.02.1 Site Investigation:**

Inadequate information about character and safe bearing capacity of the underlying soils in a chosen site frequently results in serious damage and distortion to even most elegantly conceived structure. Adequate collection of information on the nature of underlying soil therefore forms the core of site investigation.

Subsoil and hydrological investigation should be made to provide with the information for determining the proper type and most economical design of foundations. Complete facts about the subsoil conditions will be necessary for estimating and planning the construction procedure. Field investigations supplemented by laboratory investigations will give essential information.

The investigation should include one or more of the following steps:

- i) Reconnaissance of the site.
- ii) Geotechnical examination.
- iii) Subsoil exploration.

#### **i) Reconnaissance of site:**

The reconnaissance of the site is well done by walking on foot across the entire length and breadth of the site to have first hand knowledge of surface features and ground conditions. The study should record the following:-

- \* The soil cover and its visual characteristics e.g. sandy, silty, clayey etc.
- \* Existing drainage pattern, swamps etc. and likely impact on the project.
- \* Condition of structures already constructed and knowledge of their foundation.

#### **ii) Geotechnical Examination:**

For important structures a general knowledge of the geology of the region such as the character and formation of the strata, the fault and other disturbances should be studied. Coal bearing areas should be avoided for permanent construction as far as possible and under no circumstances permanent structures shall be taken up either over unstable old workings or in an area with further mining prospects. A clearance in this regard from the associated Mining Department should be ensured before final selection of site.

#### **iii) Subsoil Exploration:**

The scope for subsoil exploration is vast and needs the guidance of experts. In many areas of the coalfields, good foundation condition is available at reasonably shallow depths.

Hence for unimportant and lightly loaded structures elaborate subsoil exploration may be confined to:-

- \* Test pits to examine various strata and their nature.
- \* Assessment of bearing capacity by plate load tests, if required.

For important projects and heavily loaded structures of significant dimensions, detailed subsoil and hydrological exploration as per relevant BIS Codes should be conducted (Guidelines for soil investigations given at Appendix-6). Subsoil exploration reports prepared by specialist organizations must furnish complete information on characteristic of soil, safe and ultimate bearing capacity, settlement studies and type of foundation recommended for the kind of structures proposed. These information's will greatly remove uncertainties regarding design of foundations and the superstructure.

### **2.02.2 Planning & Design.**

Along with detailed site investigation, Engineering and Architectural drawings in the forms of plans and sections shall be prepared to satisfy the functional requirements. The functional requirements should be decided on the use of a particular facility e.g. coal handling plants, workshops, welfare buildings etc. The system layout for different schemes shall be obtained from concerned disciplines. These system layouts should indicate the position and detailed dimensions of equipment's and their load data and details, requirement of holding down bolts etc. Detailed analysis for structural design (superstructure) shall be done on the basis of relevant BIS, IRC and other codes.

Similarly relevant architectural codes should be followed for all industrial and civil structures. Design of foundation shall be done as per the actual subsoil and hydrological report. The type of construction to be adopted for Projects with a shorter life, which does not entail permanent construction, should be temporary in nature with a view to have a maximum possible salvage value on dismantling.

### **2.02.3 Drawings:**

Drawings accompanying estimates should be legible and clear. This should be prepared in a manner so that drawings are easily readable to save time and efforts. Drawing should comply with the following requirements:-

i) Scale and size of the drawings should be properly selected according to the object to be shown/drawn. Too many objects should not be incorporated in one sheet so that it becomes clumsy. Size and writing of the figures and letters should be proper and clear.

ii) Drawings should be made in standard sizes as per BIS codes and when more than one drawing is required for one work, all the sheets in one set of drawings should preferably be of same size for easy handling at site.



- iii) The notes should be very clear and explicit leaving no chance for misunderstanding or ambiguity.
- iv) An arrow indicating north direction should be given for quick orientation of the drawing . Preferably the north direction should be towards the top of the sheet.
- v) Only standard symbols and abbreviations should be used.
- vi) Drawings should be duly authenticated and all subsequent revisions should be recorded.
- vii) Drawings should be numbered as per standard practice and documentation /recording should be done.

#### **2.02.4 Specifications:**

The specifications for different items of work are to be decided before the estimates are prepared and specifications are to be laid down with due regard to functional utility, safety, durability and aesthetics. The specifications, standard of construction and quality of materials depend on the type of structures, the life and the utility value. Richer the specifications, more is the estimated cost and therefore justifications for adopting richer specifications are to be laid down.

#### **2.03: Sanction of Estimates and Method of Execution:**

The estimates are needed to be processed from the unit level and upwards for the sanction of competent authority as per the delegation of powers for sanctioning the estimates. However, CGM(C)/GM(C)/SO(C) will decide the method of execution of the work by any one of the following methods:-

- i) Departmental execution.
- ii) By piecework arrangement.
- iii) By regular tenders.
- iv) By direct negotiations.
- v) By yearly item rate contract basis.
- vi) Cost plus fee basis.
- vii) By hired agencies.

##### **i) Departmental execution:**

a) This is done when no contractors are available or where for other reasons, it is found essential and economical to do it departmentally by engaging departments own existing labours.

b) For departmental execution, a proper estimate shall be prepared and approved at competent level. This will contain:

- \* A complete estimate as per approved SOR.
- \* Break-up in terms of labour and material required.
- \* Requirement of cash imprest for making local purchases and for disbursement to workers.
- \* Cost of enabling works; hired services, stores, securities etc.
- \* Engagement of piece rate contractors on labour rate basis. A labour rate schedule has to be prepared and approved for the purpose.
- \* Provision of contingent expenses.

c) For such execution, a Project Manager will be delegated with full powers to operate the funds and procedures as approved.

d) The Project Managers will have power to dispose off all materials left over at site by any manner deemed fit as per the laid down procedures but with proper accounting.

e) The Project Manager will have power to hire necessary transport, and other construction equipment for effective execution of work.

#### **ii) By piecework arrangement.**

Under this method, the contractor merely agrees to execute a specified item at specified labour rates without reference to quantity; quantum of work and schedule of completion is fixed work wise. It is ordinarily confined to maintenance and revenue nature of works.

Under this method, work is also executed through labour rate contract based on labour rates schedule of the company in which case materials for the work are supplied by the department. Labour rates schedule shall be worked out and updated from time to time for adoption in piece rate arrangement.

#### **iii) By regular tender system.**

This method is the one ordinarily adopted for the execution of work in accordance with the specifications for a rate as accepted and incorporated in the agreement. Execution of work on regular tender system is dealt in greater detail later.

#### **iv) By direct negotiations.**

Under special circumstances, the work is executed by direct negotiations without inviting tenders, with the registered contractors or working contractors, as the case may be, based on negotiated rates or prevailing market rates or proprietary item rates as per delegation of power. Direct negotiations are also done with the parties having proprietary items.

#### **v) By item rate contract basis.(Maintenance Contract)**

For revenue nature of works of any value, like white-washing, colour-washing, painting, repair of roads, replacement of doors and windows, sanitary items, cleaning, house keeping, electrical items etc., and new minor works (new minor works are those whose estimated values are upto Rs. 3 lakhs) like addition/alteration to existing structures, extension

of roads, small culverts, small pipe lines, repair of doors and windows, jungle cleaning and dressing etc. the following procedure shall be adopted:

a) Staff Officer (Civil) shall identify and obtain normal sanction from the competent authority for the estimated projections of these works, which are expected to come up in each colliery/unit in a year. He shall call for tenders by giving due publicity depending upon the projected value work as per the laid down norms.

b) The tenders received shall be finalized with reasonable rates and agencies shall be fixed accordingly before the financial year starts, preferably by January to undertake the works during the next financial year in different collieries/units. Such rates shall be valid for one/two year as per the decision of the GM(C)/Staff Officer (C)/Engineer in Charge.

c) The contractor/contractors thus fixed shall execute the works as per the requirement of department on separate contract for each work. Engineer-in-Charge (Civil) in the Colliery/Unit shall also operate such approved contract rates within his delegation of power.

d) The Maintenance Contract, though initially fixed for a year, may be extended for a further period of one year on the basis of the same terms & conditions of the original Contract at the discretion of the Engineer-in-Charge.

e) It is decided to fix Maintenance Contract for Six Months, then immediate action should be taken to fix up Maintenance Contract on award of Maintenance Contract for six months so that non-availability of maintenance contractor on expiry of a current Maintenance Contract is avoided.

It is further mentioned that a period of Maintenance Contract should be regulated in accordance with Contract Labour (Regulations & Abolition) Act and Rules.

Price Variation Clause may not be included in the Maintenance Contract.

**vi) By cost plus fee basis.**

The cost of construction will be reimbursable on the basis of actual expenditure or cost of material and labour used and a fixed percentage towards profit and the management services rendered.

The form of contract may be applicable for projects with new technology; railway sidings etc. and all works executed through Govt. agencies, like State P.W.D., Railways etc. who have necessary expertise for executing such works. In all such cases day to day supervision by department is limited. But regular monitoring of the progress is done to ensure timely completion of the work.

**vii) Hired Agencies.**

CIL will prepare a panel of capable consultant agencies for all the services listed under this head and will decide in consultation with these agencies standard & uniform terms & conditions and rates for engagements for a minimum term of three years. Addition and deletion of firms from the above shall be a continuous process. The panel with terms &

conditions will be circulated to all the Subsidiary. Subsidiaries will execute a memorandum of understanding with each firm contained in the panel, and the items & conditions will provide to the subsidiary the right and freedom to award any work to any particular agency.

It remains implied that to the extent possible jobs will be awarded only on the basis of agreed rates terms & conditions and irrespective of total value of the contract. No further agreement will be executed like in conventional contract.

Any work in these categories will not be considered a conventional consultancy contract and depending upon the estimated value of work, this work will be awarded as Civil Engineering work by competent authority as per delegation of power. The cost of these services will come from the estimates of the work. No separate sanction will be necessary.

A firm which has been engaged to provide goods or works for a project and any of its affiliates will be disqualified from providing consultancy services for the same project. Conversely, a firm hired to provide consultancy services for the preparation or implementation of a project, and any of its affiliates, will be disqualified from subsequently providing goods or works or services related to the initial assignment for the same project. Consultants or any of their affiliates will not be hired for any assignment, which by its nature, may conflict with another assignment of the consultant.

It must be mentioned that normally it is the onus of CMPDI & its Regional Institutes to provide these services. But if in the opinion of the CGM(C)/GM(C) of the Subsidiary the work is urgent and CMPDI is not likely to meet the time schedule, he can decide to award the work to any of the empanelled agencies.

#### **viii) Emergent Works.**

In emergent cases when nature of work demands, the award of work without call of tenders upto Rs. 10 lakhs may be done by adopting procedures laid down hereinafter for the following categories of works:

- i) Interior furnishings - both hard and soft.
- ii) Afforestation , Landscape, Lawns, Gardens etc.
- iii) Catering & House keeping.
- iv) Supply of materials.
- v) General leveling and dressing.
- vi) Inauguration, foundations stone laying & special occasions.

(c) Procedures to be followed to deal with the above works:

- i) A panel of good contractors will be maintained in each category in each region/area of work through newspapers advertisements in local papers and proper selection to be reviewed every year.
- ii) The job will be offered to one of the empanelled contractor.

iii) The job will be executed against work-order which will contain schedule of quantities of work with rates and standard terms and conditions.

iv) Bigger job of very urgent nature can be divided into smaller groups.

#### **2.04 Register of Estimates:**

A register of estimates shall be maintained and the estimates processed shall be serially numbered year wise for easy linkage with status of sanction, the register of estimates shall be used for monitoring the stages in processing an estimate from tendering to award of work and also for revision of estimates. A proforma for maintaining the register is given at **Appendix-7**.

#### **2.05 Time schedule for the work:**

For major works, the estimate should be preferably accompanied by PERT or BAR CHART to indicate the time schedule for sanction, tendering, execution etc. for the said job. This analysis will form the basis for prescribing duration of construction in the NIT. Guidelines for schedule of contract period to be considered for different value of works are given at **Appendix-8** which should be followed as far as possible.

### **3. BUDGETARY CONTROL & MONITORING.**

#### **3.01 Annual Budget**

The annual budget for the works shall be initiated from the Hqrs./Area/Projects/Units by identifying the work to be done. Provision is kept for the on going or spill over works (committed works) carried forward to the next year. The expenditure incurred for different works upto the end of the last financial year shall be compiled and the anticipated expenditure for the year of the action plan should be assessed and provision made in the budget.

New works to be taken up are identified at the time of preparation of annual plan against the sanctioned projects or existing mines or as the case may be as per the phased programme of construction indicated in the project reports. The approximate value of work is calculated from prevalent construction cost for the purpose of budgeting and provision is kept in the budget depending on the physical progress of construction and financial outlay required. The completion schedule and the value of the contracts shall form the basis for the formulation of budget.

Out of the total annual budget a maximum of 1%(one) may be provided for R & D activities related to Civil Engineering works which can be carried out either departmentally or through outside agencies in case the department does not have proper infrastructure/laboratory facilities. Fund for R&D will be spent on acquiring knowledge and introduction of new technologies in CIL's working. If the experiment does not succeed, no special sanction for writing off will be necessary.

The annual budget will contain a provision of 5% of the provision for new works in the subsequent year, for spending on preparatory works, such as survey and investigation, architecture and engineering etc. and other advance actions as necessary.

#### **3.02 Budget Heads.**

The budget for Civil Engineering works shall be compiled under the following heads of account:

##### **A. CAPITAL BUDGET:**

- i) Land
- ii) Building:
  - a) Residential buildings.
  - b) Non-residential buildings:
    - Welfare buildings.
    - Other buildings.
- iii) Development:
  - a) Mine development.
  - b) Roads/Culverts & Colony development i.e. drains etc.
  - c) Water supply, Sewerage disposal i.e. Treatment plants etc.
  - d) Haul road.
  - e) Rehabilitation work.

- f) Landscaping etc.
- g) Township electrification i.e. Street lighting etc.
- h) Research and Development activities.
- i) Expenditure on advance actions like survey investigation, architecture, town planning, design, engineering and documentation.
- j) Wages, salaries and other expenditure of engineers and people engaged on construction, supervision of work of capital nature.

- iv) Civil works for Coal Handling Plants/Coal Preparation Plants/Workshops.
- v) Railway sidings.

#### **B. REVENUE BUDGET:**

i) Maintenance of assets like residential/Non-residential/Industrial Buildings including Roads, other Services like Water Supply, Sewerage disposal, conservancy etc.

ii) Wages, salaries and other expenditures of Engineers and people engaged on supervision of work of revenue nature.

#### **3.02.1 Guidelines for Maintenance Cost of different works:**

The following provisions for maintenance cost shall be kept in the annual revenue budget:

<u>Sl.No.</u>	<u>Items</u>	<u>Annual repair</u>	<u>Special Repair.</u>
i)	Type Qtrs. A,B,C D & Miners Qtrs.	1% of prevalent capital cost.	1/2% of prevalent capital cost per annum accumulated for 4 years.
ii)	Hospital/Canteen /Dispensary etc.	2.5% of prevalent capital cost.	1% of prevalent capital cost per annum accumulated for 4 years.
iii)	Industrial Buildings	1.5% of prevalent capital cost.	3/4% of prevalent capital cost per annum accumulated for 4 years.
iv)	Water supply	5% of prevalent capital cost.	2% of prevalent capital cost per annum accumulated for 4 years.
v)	Sewerage/ Drainage	1/2% of prevalent capital cost	1/4% of prevalent capital cost per annum accumulated for 4 years.
vi)	Roads	1/2% of prevalent capital cost	1/4% of prevalent capital cost per annum accumulated for 4 years.

### **3.02.2 Frequency of Different Maintenance Works**

i) Special Repair works like painting/ polishing of doors and windows, floor repairing etc. of all the above items shall be done once in every four years. General Repair & Maintenance works of Welfare Bldgs. like Hospital, Dispensary, School shall be done once a year. General Repair works like white washing & colour washing of Residential and Non-Residential Bldgs. shall be done once in every two years.

ii) Black topping including necessary major repairing works of Roads shall be done once in every four years.

iii) For every change in occupation of quarter, General Repair works like White Washing/ Distempering, Colour Washing & other minor repairing works etc. shall be done for which a separate provision upto 1/8% of prevalent capital cost of residential Bldgs. shall be kept in the revenue budget.

iv) Separate provision for annual maintenance and servicing of other installations like air Conditioners, Lifts, sub-station (electrical equipment's) etc. shall be kept in the annual revenue budget of the department.

### **3.03 Manpower Budget.**

While formulating project report, manpower requirement for execution and maintenance of the project shall be clearly spelt out.

#### **3.03.1 In this regard following will be considered for Civil Engineering personnel.**

CGM(C)/CE(C)/Dy.CE(C){SO(C)}/SE(C) will be the Engineer-in-Charge of all Construction & maintenance works in area & HQ level. The definition of Engineer-in-Charge will be as per Clause 5.02.1. The EIC is to be designated by the Competent Authority of the company.

SE(C) to Sr.EE(C) & EE(C) will act as the In Charge of Work (to be nominated by the Engineer-in-Charge) for all works within their area of responsibility.

The above is subject to availability of proper supporting staff both at office and at field level with proper communication facility/ vehicle and administrative and financial power as mentioned the Clause defining the Engineer-in-Charge. (Clause.5.02.1)

**3.03.2** The manpower requirement of Civil Engineering personnel, technical and supervisory staff etc. for the office of the CGM(C)/GM(Civil) at the company HQ level and Staff Officer(C)/Dy.CE(C) at Area level is to be considered under the overall corporate/ area level establishment. Separate establishment for monitoring and quality control of works shall be maintained at Hqrs. with direct reporting from individual projects/ areas.

**3.03.3** For revenue/ maintenance nature of job the annual value of work including salaries of the departmental manpower and materials will be multiplied by 3 (three) for assessing manpower in terms of above modality.



### 3.04 Monitoring and Quality Assurance

**3.04.1 Monitoring:** It is an important tool of Management. Monitoring can be done effectively by preparing a detailed programme of work in the form of PERT Chart or BAR Chart of all the activities for completing the work. The programme of work is prepared with great care taking into account the field conditions in consultation with the Contractors and the Engineers. The schedule of monitoring is fixed and the physical progress of work and the financial expenditure are regularly monitored as per the time schedule. Monitoring is done weekly at the lowest level and monthly at the Project level.

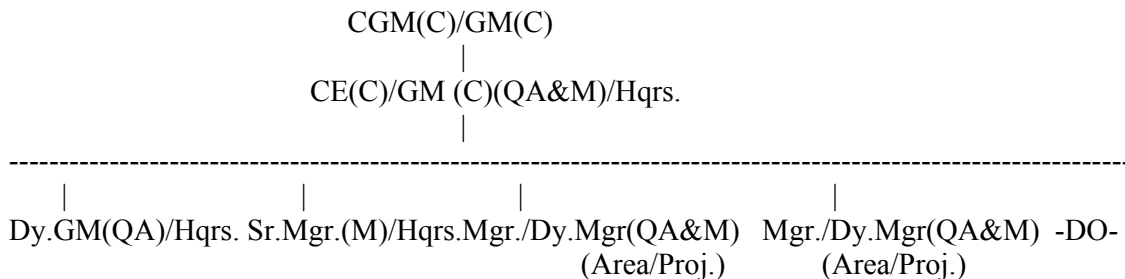
The programme shall be flexible enough to permit modifications to meet unknown contingencies that disturb the planned sequence of operations. Monitoring helps in making necessary adjustments to bring the programme back in line.

Systematic steps are taken to ensure the programme is followed as closely as possible to achieve the desired level of progress of work and this also ensures planned expenditure as per the budget. This has been discussed in detail in the relevant chapter.

**3.04.2 Quality Assurance:** Quality assurance encompasses all the measures that are necessary to achieve the quality of a product. Specifically for Civil Engineering construction it implies that there are standards of construction for all works, which must be achieved. Knowledge/ consciousness about quality is therefore the first prerequisite of quality assurance.

Bureau of Indian Standards (BIS) has extensively covered various aspects of Civil Engineering constructions which must be followed for quality assurance. To start with, specifications covering materials and workmanship should be clearly drawn and laid down as per BIS codes/ other scientific bodies engaged in standardization (like NBO, IRC etc) Drawings should support the specifications in the form of notes, sketches etc. as far as practicable. Workmanship should be similarly covered to the possible extent in the form of acceptable limits of tolerance for any work.

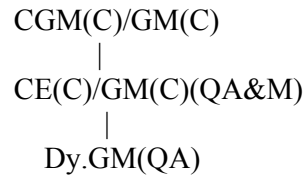
**3.04.3** A typical organization structure for both monitoring and quality assurance works are given below :



- 
- i) CE(C)/GM(C)(QA&M) Hqrs. shall report to CGM(C)/GM(C) of the Company.
  - ii) Necessary supporting staff shall be provided to above Managers

**3.04.4** A Tree Chart of Quality Control set up with functions is given below:

a) Functioning of core cell at headquarters:




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**Core Cell**

Sr.Manager(C) - 2 nos  
 Mgr./Dy.Mgr(C) - 2 nos  
 Engg.Asst/ Overseer - 2 nos  
 LDC Typist - 2 nos

1. Inspection of works costing more than Rs.50 lakhs
2. Technical audit of works as above.
3. Overseeing the quality control activities and providing necessary guidance.

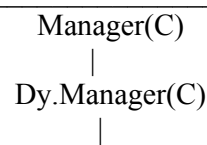
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**Central laboratory**

Mgr./Dy.Mgr(C) - 1 no.  
 Asst.Mgr.(C) - 2 nos.  
 Engg.Asst/Overseer - 4 nos.  
 Ldc/Typist - 1 no

1. Carrying out quality control test for works in Hqrs.
  2. Carrying out special tests for quality control.
  3. Providing guidance in setting up and running the field laboratories.
- 

b) Functioning of quality control cell in Area/ Project




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Asst Manager(C)/ Field  
 Field Formation - JET Engg.Asstt/  
 Overseer

Function: Day to day quality control activity to be exercised by field formation.

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Area/ Project/ field  
 Laboratory  
 Asstt. Manager(C)/ Lab.Technicians.

Function : Routine quality control tests in the field

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### 3.05 Mobility

For effective supervision of different works, timely fulfillment of Project completion and quality control, mobility is the most important factor, without which work is bound to suffer. The Civil Engineering cadres in CPWD, State PWD and other Govt. Departments are always equipped with the departmental vehicles and the same practice should be followed in Coal India and its Subsidiaries.

It is therefore essential that the following norms will be followed in providing vehicles:

#### (A) Producing Subsidiary

- i) CGM(C)/ GM(C) one car for his exclusive use.
- ii) CE(C)/GM(C)/ Dy.GM(C)/ Different Cells at HQ level one Jeep.
- iii) Town Engineering/Administration at HQ - one Jeep
- iv) Sr.Manager(C)/ S.O(Civil) - one Jeep.
- v) Engineer-in-Charge(C)/ Project Officer(C)- one Jeep.
- vi) Asst.Mgr.(C)/Engineer(Civil)- one Motor Cycle.

#### (B) CMPDIL (HQ) & RIs' of CMPDIL

i) HQ - one Car This is required, as Engineers have to undertake frequent visits to mines & other offices.

ii) RIs - one Car -do-

So far the cost of new vehicles and running of vehicles are concerned, the same may be met out of the provision of 3% as contingent to be kept in all the estimates.

In case of non-availability of vehicles, the CGM(Civil)/ GM(Civil) will be empowered to hire vehicles depending upon the need based urgency.

### 3.06 Material Budget

Like manpower budget, material budget should also form a part of annual budget proposals. The material budget should be carefully worked out for different items of works in the various civil works in the annual plans. In the material budget projection of requirement for cement and steel assumes the most significant part. The lead time required for building up inventory for steel is very high and the progress of works suffer for want of sufficient quantity of required sections of reinforcement or structural steel. Cement & Steel has since been decontrolled. However, for effective quality control of works it is advisable to supply cement & steel by the department as far as practicable.

The plant and machinery required for the construction and maintenance of haul roads in annual plans shall be identified from Project reports and budgets for their procurement initiated well in time. With the thrust on mechanized construction and maintenance of haul road in open cast mines and also for better maintenance of link approach roads this needs special attention.

## **4.TENDER AND AWARD OF WORK**

### **4.00 Types of tender**

While the competent authority sanctions the estimate, the Engineer in Charge will decide the method of execution of work. Generally civil works are executed on contract by inviting tenders. In case of emergency works, directly affecting the production in the mines or involving safety of workmen, the requirement of open tenders can be relaxed and the work can be executed by direct negotiations with the working contractors or by call of limited tenders amongst the working contractors with the approval of the competent authority as per the delegation of powers. In case of limited tenders the tender notice is sent to limited number of contractors who are considered suitable for undertaking the job within the time frame set for the urgent works.

Press publication for emergency works can be avoided to save time. However, such notices should be sent to all working contractors of the Area and also displayed in the notice boards to encourage competitions.

Tenders are invited in any of the following forms:

- i) Turn-key Tenders
- ii) Limited Tenders
- iii) Open Tenders
- iv) Short Tenders
- v) Quotation Notice

#### **4.00.1 Turnkey tenders**

The intention behind turnkey contracts is to entrust the contractors with the entire responsibility of detailed investigation, planning, design, construction and commissioning of the total project. Turn key offers are generally invited for specialized nature of work like design and construction of Water Treatment Plants, Sewage Treatment Plants, CHPs , Washeries ,Workshops ,Underground and Overhead Water Tanks etc.A panel of contractors for such specialized nature of works will be maintained by the companies. These panels will be kept updated by advertisement at regular intervals as outlined hereinafter.

Whenever a proposition emerges, these empanelled agencies should be asked to propose their own technology and system for meeting the duty conditions required. The proposals prepared by the empanelled agencies, after due survey and investigation and appraisal of site conditions, shall be critically examined in their entirety and from those proposals, a firm scope of work for the selected/ frozen system would be developed and thrown for bidding amongst the empanelled/ pre-qualified agencies. The entire responsibility from concept to commissioning including design, construction, procurements, installations shall be left to the contractor with least interference but with strong supervision from the company. The department before the execution of works approves the designs, drawings and specifications.

#### **4.00.2 Limited Tenders**

In case the work is of a specialized nature/ very urgent nature with strict time frame and stringent quality requirements, limited tenders amongst registered/ working contractors or known agencies of repute may be invited with the competent approval, depending upon the value of work as per delegation of power.

#### **4.00.3 Open Tenders**

This is the normal procedure of tendering where tenders are invited from the parties under a given set of terms & conditions regarding their past experiences, present status, credibility and other conditions which may be included in the NIT for a particular tender depending upon the requirement of work. The minimum time for submission of tender and extent of publicity to be given are elaborated in the relevant clauses.

#### **4.00.4 Short Tenders**

For smaller work of estimated value upto Rs. 5 lakhs open short tenders may be invited. This type of tender notice is similar to open tender notice with the exception that the time of circulation can be reduced to a minimum of 5 days depending upon the urgency of the work. However, publicity by way of circulating notices as per Cl.4.03 (v) shall be ensured in such cases.

#### **4.00.5 Quotation Notice**

For smaller works of estimated value upto Rs.1 lakh, quotation notice may be floated. This will be similar to open tender notice except that the BOQ/ NIT is not sold and the interested parties are asked to collect the BOQ from the office of the tendering authority during the specified period of time and quote their rates duly signed with official seal, The period of circulation of such notice can vary from 5 to 10 days depending upon the value and urgency of work.

#### **4.01 The rates can be invited in any of the following forms : (Normally Percentage Rate Contract will be invited.)**

- a) Item rates
- b) Percentage rates
- c) Turn-key rates

#### **4.01.1 Item Rates**

The item rate tenders are invited for haul road/ road works and other non-standard works like industrial building, office building, and development works, water supply, sanitary system etc. In these tenders, tenderers are required to quote the rates against each of the items of "Schedule of Quantities" and not as a percentage above or below the standard schedule of rates. Alternative "rate only" items should not be provided in the tender document. If at all

any such change becomes unavoidable, after award of work, it is always safer to work out a rate for such an extra item according to the procedure laid down in the contract for extra items of work.

#### **4.01.2 Percentage Rates**

The percentage tenders are invited for standard works like residential buildings or other standard modular construction units in which the schedule of quantities indicating item wise rates based on standard schedule of rates and amount. The tenderers are required to quote percentage above or below the schedule attached to the tender.

#### **4.01.3 Turn-key Rates**

Turn key rates are generally invited for specialized nature of works such as water treatment plants, sewage treatment plants, coal handling plants, washeries etc. where the entire responsibility of the work starting from detailed site investigation, planning, design, materials procurement, construction and commissioning are vested with the contractor.

#### **4.02 Preparation of Tender Documents**

The tender papers are the most vital documents for execution of work through outside agencies and discrepancies in tender documents may lead to serious repercussions in execution of the works. Tender documents should therefore be very carefully prepared with close scrutiny.

The following particulars shall form the part of a complete tender document:

- i) Notice Inviting Tender
- ii) Detailed Tender Notice.
- iii) General Terms & Conditions/Commercial Terms & Conditions.
- iv) Additional Terms and Conditions, if any.
- v) Schedule of deviations ( to be filled in by the Contractor) **(Cl.4.17.2)**
- vi) Specifications
- vii) Scope of Work/Schedule of Work/Bill of Quantities.
- viii) Tender drawings
- ix) Standard formats like Bank Guarantee and Articles of Agreement etc.

The approved draft Tender Document is to be kept in safe custody.

#### **4.03 Publication of Notices Inviting Tenders.**

The extent of publicity to be given for any tendered work depends upon the nature and magnitude of the work. There is no point in giving state wide or national level publicity for small and medium sized works costing upto Rs. 5 lakhs as only local contractors will be interested in such work. However, for works valued more than Rs. 5 lakhs not only local but other contractors may also be interested in such works. Hence, it is essential that this should be given adequate publicity through the press, the norms being as follows:

i) For very specialised works "Global Tenders" may be invited on approval of competent authority on case to case basis.

ii) For works of estimated value more than Rs. 50 lakhs, the tender notices are to be published at least in one leading national newspaper from nearest one metropolitan city and at least one regional newspaper in the local language and one local newspaper from the town/city close to the area where the work is to be executed.

iii) For works of estimated value above Rs. 10 lakhs and upto Rs. 50 lakhs the tender notices should be published in at least one leading regional newspaper and one local newspaper.

iv) For the works of estimated value above Rs. 5 lakhs and upto Rs. 10 lakhs it will be sufficient if the tender notices are published in one leading local newspaper published from nearest city or town.

v) For works of estimated value upto Rs. 5 lakhs it will be sufficient if the tender notices are sent to all Area Offices within the subsidiary and all the Project/Unit offices for display in the Notice Boards.

#### **4.04 Issue of Tender Documents.**

4.04.1 Tender Documents shall be issued to all aspiring bidders who are registered in the appropriate category with Coal India Ltd or any of its subsidiaries on payment of the requisite fees towards the cost of Tender document (Application Fee) as prescribed in the NIT. However, in such places where the practice of registration is yet to be adopted, the Tender document may be sold to all interested applicants. However, the following procedure may be adopted for receipt of Tenders:-

Tenders may be received in Two envelope system for works of estimated value of upto Rs 5 lakhs. The first envelope will contain credentials (duly authenticated by the bidder) in support of his qualifications in accordance with the eligibility criteria along with EMD in a separate envelope. The second envelope will contain the duly filled in Tender Document.

Tenders will be received in Two Part system ( Ref. Cl. 4.11.1) for all works of estimated value of over Rs.5 lakhs.

The basic minimum eligibility criteria for the purpose of evaluation of offers received will be as under:-

1.(a) The intending tenderer must have in its name as a prime contractor experience of having successfully completed similar works during last 7(seven) years ending last day of month previous to the one in which bid applications are invited (i.e. eligibility period) should be either of the following.

Three similar completed works each costing not less than the amount equal to 40% of the estimated cost.

Or

Two similar completed works each costing not less than the amount equal to 50% of the estimated cost.

Or

One similar completed work costing not less than the amount equal to 80% of the estimated cost.

1. (b) Average annual financial turnover of civil work during the last 3(three) years, ending 31<sup>st</sup> March of the previous financial year should be at least 30% of the estimated cost.”

The terms similar nature has also to be defined properly e.g. for a RCC predominant work the contractor must have experience in a similar RCC predominant structure.

The intending tenderer must submit documentary evidence in support of 1.(a) & (b) above in the form of certified copy of work order, completion certificate, payment certificates/vouchers indicating the period of work for which the payment has been made.

In addition, the intending tenderer has to submit the following:

- i) Permanent Income Tax Account Number
- ii) Particulars of Registration with appropriate Sales Tax Authorities (In relation with 'Works Contract Tax') if applicable.\*\*)
- iii) Particulars of Registration/clearance from the appropriate Provident Fund authorities, if applicable.

Copies of all the certificates submitted, duly authenticated by the bidder, will have to be verified with the originals by the deptt. However, provisions under (ii) and (iii) above may be relaxed at the discretion of the Tender issuing authority for the purpose of sale of Tender Documents only. These certificates will have to be submitted along with the tender in such cases.

\*\* The Sales Tax Act is a state subject. Therefore it's application in it's entirety will be as per the respective legislation in force at the place of work.

**The clauses mentioned above will have to be mentioned in the NIT (Notice Inviting Tender).**



**4.04.2** Tender documents are to be issued individually on requisition in writing from the contractors or their accredited representatives. Acknowledgements for receipts of tender documents may be obtained from the contractor or their accredited representatives on the requisition itself at the time of handing over of tender documents. In cases where tender documents are requested for transmission by post, these should be dispatched by registered A.D. The department is not responsible for any postal delay in such cases.

Particular attention should be paid to the prompt issue of tender documents to all aspiring bidders/firms who apply for them after recording necessary particulars in the 'Tender Issue Register' after obtaining the signature of the Tenderer or his authorized representative. They should be issued on the day the application is received, or on the following day at the latest after the cost of tender documents has been deposited.

**4.04.3** Tender documents should fulfill the following criteria before being sold to parties:

i) All the copies of tender documents prepared for a work should be serially numbered as 1,2,3 etc. and the pages and the drawings in each document should also be serially numbered.

ii) The front cover page should convey all the information in the manner indicated at **Appendix-9**.

iii) The certificate of issue by the Engineer-in-Charge.

iv) The name of the work and the serial number of copies of tender documents prepared should be entered in the "Register of issue of Tender documents" as given at **Appendix-10**. Issue of tender documents should stop at least one day prior to the date of opening of tenders.

**4.04.4** The following time limits between the call of tenders and the date of opening of tenders are laid down but this period may be varied at the discretion of the SO(C)/GM(C)/CGM(C).

i) 10(ten) days in case of work costing below 10 lakhs.

ii) 14 (fourteen) days in case of work costing between 10 lakhs to 50 lakhs.

iii) 21(twenty-one) days in case of work costing more than 50 lakhs.

iv) For urgent works costing upto 5 lakhs not published in Newspapers, a minimum time of 5(five) days may be kept between the date of call of tenders and the date of opening of tenders at the discretion of SO(C)/GM(C)/CGM(C).

v) The aforesaid time limits will not apply to Global tenders and in such cases ad hoc decision should be taken for fixing the period by the competent authority to accept the tender.

Sale of tender documents should be suspended one/two days before the date specified for opening of tenders.

#### **4.05 Application Fee.**

Tender documents shall issued on payment of 'Application Fee' as follows:

i) For estimated value of work upto 2 lakhs	Rs. 100/-
ii) For estimated value above 2 lakhs upto 10 lakhs	Rs. 250/-
iii) For estimated value above 10 lakhs upto 25 lakhs	Rs. 500/-
iv) For estimated value above 25 lakhs upto 50 lakhs	Rs.1000/-
v) For estimated value of above 50 lakhs upto 1 crore	Rs.2000/--
vi) For estimated value of above 1 crore upto 2 crore	Rs.5000/-
vii) For estimated value of above 2 crore upto 5 crore	Rs.7500/-
viii) For estimated value of above 5 crore	Rs.10000/-

#### **4.06 Earnest Money**

The earnest money for tenders other than turnkey should be 2% (Two percent) of the estimated value of work (without ceiling) to be deposited in the form of Bank Draft from Nationalized Banks. However, for work valued upto Rs. 5 lakhs the earnest money may be deposited in cash or in aforesaid form. The earnest money shall bear no interest and shall be refunded to the unsuccessful tenderers after finalization of tender and award of work. Earnest money received in the form of Bank Draft shall be deposited to the associated Accounts Department. Earnest money to be refunded to the unsuccessful tenderers as per clause 4.06.3.

For turnkey contract Earnest Money is to be deposited in the form of Bank Draft upto Rs. 5 lakhs and the balance amount, if any, is to be deposited either in the form of Bank Draft or Bank Guarantee from amongst any of the list of Banks to be provided in the bid document.

On receipt of Bank Guarantee, an independent reference shall be made to the issuing Bank for confirming the issue of BG. The BG shall be kept under the custody of accounts Deptt. passing the bills. The record of BGs shall also be maintained in the Office of SO(C)/CE(C) for monitoring the validity and timely renewal.

##### **4.06.1 Forfeiture of Earnest Money**

According to prevalent standard practice Earnest Money is paid by each tenderers to enable the company to ensure that a tenderer does not refuse to execute the work after it has been awarded to him. In cases where the tenderer fails to commence the work latest within one month of award of the work or within one month of handing over site, whichever is earlier, the Earnest Money shall be absolutely forfeited to the company.

In case, where decision has been taken to forfeit earnest money of the tenderer for valid reasons, it is necessary to issue requisite notice to defaulting contractor.

##### **4.06.2 Exemption of Earnest Money**

The tenders shall be treated valid when it carries requisite earnest money and the tenders without Earnest Money shall be rejected out right except in such cases where prior approval for exemption has been granted by CMD of the Subsidiary Company or Chairman, CIL.

#### **4.06.3 Refund of Earnest Money**

The earnest money will be refunded to the unsuccessful bidders on finalization of the award or on rejection of his bid or at the expiry of the validity period of the tender (unless extended), whichever is earlier. Earnest money should be refunded without waiting for any application or request from unsuccessful bidders. The EM of the successful bidder will be retained by the department as part of the security deposit for due fulfillment of the contract and will not carry any interest.

#### **4.07 Security Deposit:**

The first part of security deposit including the Earnest money already deposited shall be 5% (five percent) of the contract value. Security deposit will not carry any interest. The contractor shall deposit immediately after receipt of letter of award of work, the balance of 2% (two percent) of awarded value, if any, after adjustment of the earnest money already paid as Initial Security Deposit before execution of the agreement. In case, where agreements are not required to be executed, balance of initial security deposit should be deposited within the period to be mentioned in the work order and under no circumstances the period should be prior to commencement of any payment made to the contractor. The balance security deposit shall be recovered from first four or less running on account bills ( at the discretion of the Engineer in Charge ) of the contractor to be submitted for the work done under the contract. The full security deposit shall remain at the disposal of the Company as Security for the satisfactory execution and completion of the work in accordance with the provisions of the contract.

**4.07.1** All running on account bills shall be paid at 95% (ninety five percent) of work value. This 5% (five percent) deduction will be the second part of security deposit. The amount so accrued shall be released after passing of the final bill.

**4.07.2** The Bank Guarantee towards security deposit shall be acceptable only for values above Rs. 50,000/- and the Bank Guarantee shall be valid for a minimum period of one year or the period of contract plus six months whichever is more. Bank Guarantee is to be submitted in the standard prescribed form duly vetted by Finance and Legal Department of the company. The bid document will contain a list of Banks whose guarantees are acceptable. If it is decided not to accept any bank guarantee from a particular Bank, it may also be mentioned in the Bid document. All foreign Bank's guarantee will be confirmed by a Bank located in India & acceptable to the company. It will stipulate that the Bank guarantee must be unconditional and should be encashable on presentation to the issuing Bank. A provision will be incorporated in the Bank guarantee for exclusive jurisdiction of a Court at a location convenient to the company for contesting legal cases arising out of encashment of the guarantee.

**4.07.3** The company shall be at liberty to deduct/appropriate from the security deposit such sums as are due and payable by the contractor to the company as may be determined in terms of the contract, and the amount appropriated from the security deposit shall have to be made up by further deduction from the contractor's subsequent on account bills, if any, so that the amount of S/D remains as per the Tender Conditions.

#### **4.07.4 Refund of Security Deposit:**

The refund of security deposit shall be subject to companies right to deduct/appropriate its dues against the contractor under this contract or under any other contract.

On completion of the entire work and certified as such by the Engineer-in-charge and on passing of the final bill by the Civil Engineering Department, one half of the security deposit remaining with the company shall be refunded. The other half shall be refunded to the contractor on the expiry of six months from the date of completion as certified by the Engineer-in-Charge, subject to the following conditions:

a) Any defect/defects in the work, if detected after issue of completion certificate is/are rectified to the satisfaction of the Engineer-in-Charge within the said period of six months.

b) In the case of building work or other work of similar nature, the refund shall be made on the expiry of the said six months period or at the end of one full monsoon period i.e. June to September, whichever is later in point of time and any defects such as leakages in roof, effloresces in walls, dampness, defects in drainage etc. should be rectified to the satisfaction of Engineer-in-Charge.

#### **4.08 Execution of Agreement/Work Order.**

**4.08.1** As soon as possible after the acceptance of a tender and award of work, the successful tenderer is called upon to furnish the required initial security deposit and to execute a formal agreement. Only work order is issued to the contractor for works valued upto Rs. 5 lakhs and it is not necessary to execute agreements in such cases. Standard documents only form part of the contract agreement. Important points of the correspondences with the contractor should be reflected in the work order/contract agreement.

**4.08.2** A formal agreement is executed on a non-judicial stamp paper of appropriate value for contracts more than Rs. 5 lakhs. The agreement and the work orders shall be thoroughly scrutinized with reference to the following:

i) That the agreement is signed by the contractor himself or a person holding the power of attorney to sign the agreement.

ii) Any alteration to the standard form may result in legal complications. No officer should accept unauthorized alterations to the standard printed contract form. The primary responsibility for issuing amendments to the contract will always rest with the authority who has originally approved the contract though for administrative reasons, he may delegate the powers of issuing amendments to his subordinate authorities subject to the delegation of financial power rules of the company. The subordinate authority will keep the superior authority informed in writing whenever such amendments are issued. At the time of closing the contract, the authority who had originally approved the contract must satisfy itself that the amendments issued by the subordinate authority are in order. He may, if required, evolve his own control systems to see that the contracts approved by him are being executed properly.

iii) That the terms of the agreement/work orders are precise and definite without any ambiguity or misconception/wrongful words.

iv) whether there are provisions in the contract for making available land for construction of temporary structure, allotment of company's buildings, supply of electricity, supply of water, supply of equipment etc. for the execution of the contract. If so, whether clear stipulations have been made for the recovery of the cost thereof.

v) The provision has been made for recovery of all statutory dues wherever applicable, sales tax on works contracts and other taxes and duties.

vi) All decisions taken by correspondence with the contractor shall form part of the agreement and shall be duly incorporated.

vii) That the quantities stipulated in the agreements are in accordance with those shown in the tender document.

viii) That the rates and the amounts in the agreements/work orders are in accordance with the accepted tender.

ix) That the dates of commencement and completion of the work have been clearly specified.

x) Whether there is any provision in the tender/work order/agreement for issue of materials to the contractor. If so, whether the rates of recovery have been clearly specified.

xi) That the contractor has submitted a labour license under Contract Labour (Regulation & Abolition) Act 1970 and rules 1971.

xii) The Clause for “ Compensation for Delay ” in execution of works is included.

xiii) The agreement includes provision of adequate technical supervision and quality assurance by the contractor.

xiv) The agreement includes undertaking on behalf of the contractor to provide reasonably clean and hygienic habitation to the staff/labourers on roll of the contractor.

xv) The common defects to be taken care of regarding agreement :

a) The original offer by the contractor is kept in a correspondence file that is freely approachable.

b) Pages of agreement are not numbered serially. Page numbering is necessary to ensure that no unauthorized deletions or additions are made.

c) The condition of contract many times call for submission of drawings for prior approval. This is not enforced.

d) Acceptance letter as well as letters which contain important deviations from the

contract conditions but which have been agreed to during negotiations are not attached to the agreement.

xvi) The contractor indemnifies the Company against any liability arising out of non observance of the statutory provisions like royalty payments, all taxes, workmen compensation act, minimum wages act, income tax act, contract labour & abolition act etc.

#### **4.08.3 Power to Sign Agreement.**

The power to sign agreement on behalf of the company in respect of Civil Engineering Works only will be as follows subject to the condition that this power can be exercised only after the tender has been accepted by the competent authority & work order issued.

- a) For works costing (Award value) upto Rs. 25 lakhs - Supdt. Engineer(Civil)
- b) For works costing above Rs. 25 lakhs but below Rs. 75 lakhs - Dy. C.E.(C)/SO(C).
- c) For works costing above Rs. 75 lakhs - CGM(C)/GM(C) of the Company.

#### **Supply of copies of Contract Document to the contractor.**

Two sets of contract documents/agreements should be prepared and signed by both the parties. One of the sets should be stamped "Original" and the other "Duplicate". The duplicate copy should be supplied to the contractor free of cost and the original is to be retained by the deptt.

For any additional copies required by the contractors the price to be charged should be in accordance with clause 4.05. Only true copies of agreements should be utilized for the use of accounts and other departments.

#### **Certification & Safe Custody of Agreements:**

The original contract documents/agreements should be kept in the personal custody of the Engineer-in-Charge or Head of the contracts Department or a person authorized by the Engineer in Charge.

Certified copies of the agreements should be furnished to the authority accepting the tender by the Engineer-in-Charge. On receipt of the certified copy of the agreement the tender accepting authority or his authorized representative should ensure that the agreement is in accordance with the accepted tender.

A certified copy of the agreement will be forwarded to the concerned Accounts Officer by the Engineer-in-Charge. A certified copy of the agreement should be given to the EE(C)/AE(C) for day-to-day supervision and effective control of the work.

The Engineer-in-Charge or the authority empowered to sign the agreement on behalf of the company should certify each copy including the duplicate copy of an agreement as "True Copy" and should put their full signature as a token of such certification.

#### **4.09 Failure to Execute Agreement:**

Failure on the part of the successful bidder to execute the agreement as provided therein, within the reasonable time after starting of work, will hamper the work, as no payment shall be made without an agreement. It is incumbent upon the contractor to provide all the documents for preparation of the agreement within 10(ten) days of issue of letter of acceptance of tender so that the agreement is executed within 30(thirty) days of letter of acceptance of tender. It will be advisable to get the agreement executed before the commencement of work and in any case within 30 days of issue of work order. In case the contractor fails to execute the agreement and/or commences the work within the time specified/ allowed for the same, the work order issued to the contractor might be cancelled forfeiting the Earnest Money.

#### **4.10 Validity of the Tender**

The validity of the tenders shall be 4(four) months from the date of opening of price bid or revised price bid, if any. However, the Part II ( Price Bid ) of a Tender should be opened within a stipulated time limit from the date of opening of Part I preferably within 30 days and this is to be mentioned in the NIT. For big value works of estimated cost of over Rs.5 crores, the above validity may be fixed at 6 ( Six ) months.

#### **4.11 Procedure for Submission of Tender Bids.**

##### **4.11.1 ( Also refer Clause 4.04.1)**

All the tenders will be received in either two envelope or two part system (**Ref. Cl. 4.04.1**) contained in two separate covers as detailed hereafter:

i) The Earnest Money will have to be submitted in a separate envelope and NOT WITH the Part I of the Bid.

ii) Part-I (first cover) (Tech.Bid)

The first cover of the tender will contain the following:

a) Papers relating to Technical aspects of the Bid along with copies of all credentials/certificates related to the technical qualifications of the bidder.

b) Additional commercial terms & conditions, if any.

c) Other deviations from the terms & conditions of the tender, if any. This is to be provided in the requisite places in the Tender Document.

However, in addition to above particulars any other credentials may be asked for in Part-1 if felt necessary by the authority calling the tenders.

ii) Part-II (second cover).

The second cover will contain the tender document issued to the tenderer wherein the price bid/rates should be furnished. Each page of the tender document should be signed by tenderers. This will not contain any alternative items or suggestions, comments or conditions.

**4.11.2 For Turnkey works:**

For specialized nature of work or for turn-key works pre-qualification tenders are invited and the qualified tenderers are issued the tender documents. Pre-qualification for tendering is necessary when there is no registration for such work in the company. The tender in all such cases will be in 2 stages, the first stage being the pre-qualification tender as detailed below:

A) The first stage will contain the pre-qualifying requirements for issue of the tender document for submission of tender. Depending on the nature of work, the technical parameters for pre-qualification of tenders will be fixed, wherein the previous experience of executing similar work, value of such works, plant and machinery available for executing such works and the technical manpower for supervising the works will be laid down for evaluation.

B) The second stage will consist of two parts to be submitted separately as detailed below:

Earnest Money Deposit in a separate envelope.

i) Part-I(first cover).

- a) Deviations from the specified commercial terms and conditions, if any.
- b) Deviations from the specified terms and conditions of the tender, if any.
- c) Deviations from the specified technical parameters if any, and the detailed technical offer.

The above details are to be provided at requisite places specifically provided for this purpose in the Tender Document.

ii) Part-II (Second cover)

The second part will contain the tender document issued to the tenderer wherein the price bid/rates would be furnished. The tenderer should sign each page of the tender document.

**4.11.3 For normal works of value upto Rs. 5 lakhs:**

i) For work of value upto Rs. 5 lakhs Two Envelope system ( **Ref. Cl. 4.04.1** ) should be followed for tendering purpose where all the terms and conditions and specifications etc. should be frozen at the tendering stage and no deviations from the terms and condition/specifications indicated in the tender documents are to be accepted.



ii) In Two Envelope system the earnest money should be submitted in a separate cover along with the first envelope containing copies of credentials. The second envelope should contain the duly filled in Tender Document.

**4.11.4 Submission of AFFIDAVIT by the Bidders (Applicable for Works of Estimated Cost of over (Rs.50 lakhs.) in the following format.**

**Non-Judicial Stamp Paper.**

**AFFIDAVIT.**

I, ....., Partner/Legal Attorney/Accredited Representative of M/S. ...., solemnly declare that:

- 1. We are submitting Tender for the Work  
.....  
..... against Tender Notice No.  
..... dated.
- 2. None of the Partners of our firm is relative of employee of ..... (Name of the Company)
- 3. All information furnished by us in respect of fulfillment of eligibility criteria and qualification information of this Tender is complete, correct and true.
- 4. All documents / credentials submitted along with this Tender are genuine, authentic, true and valid.
- 5. If any information and document submitted is found to be false/ incorrect at any time, department may cancel my Tender and action as deemed fit may be taken against us, including termination of the contract, forfeiture of all dues including Earnest Money and banning/ delisting of our firm and all partners of the firm etc.

**Signature of the tenderer,**

**Dated .....**

**Seal of Notary**

#### **4.12 Call of Tenders/Constitution of Tender Committee.**

##### **4.12.1 QUALIFICATION REQUIREMENTS COMMITTEES:**

There will be a Permanent Committee to lay down qualification requirements for major contracts (over Rs.20 Crore) in all subsidiaries & CIL(HQ) which

a) Will be headed by at least an Officer of the level of General Manager, if not a member of the Board.

b) Will follow the basic approach of having as many competitors as possible, without compromising quality, on the basis of their financial status and performance reports for which the company concerned may maintain a suitable data bank.

c) Will give cogent reasons for laying down specific and unambiguous qualification requirements, which are not open to interpretations later.

d) And will give a list of probable bidders if the recommended Qualification requirements are accepted.

The recommendations given by the Committee will be approved by the authority competent to award the contracts or the CMD in case such an authority is the Board or the Government.

**4.12.2** As soon as the tender notices are issued for publication, the authority inviting the tenders initiates proposal for constitution of the tender committee. Approval of the competent authority who has powers to approve the award of work is obtained for constitution of the tender committee. The constitution of the tender committee for different values of work may broadly on the following lines (need based modifications can be done):

##### **(I) For tenders of work valued at more than Rs.2 crores.**

- |                                    |         |
|------------------------------------|---------|
| i)D(T)/P&P of the subsidiary       | -Member |
| ii)CGM(C)/GM(C) of the subsidiary  | - -do-  |
| iii)GM(F) of the subsidiary        | - -do-  |
| iv)GM(Plg/Proj.) of the subsidiary | - -do-  |

##### **(II) For tenders of work valued more than Rs. 50 lakhs and upto Rs. 2 Crores:-**

- |                                     |           |
|-------------------------------------|-----------|
| i) CGM(C)/GM(C) of the Subsidiary   | - Member. |
| ii) GM(F) of the Subsidiary         | - -do-    |
| iii) GM(Plg/Proj) of the subsidiary | - -do-    |

**(III) for tenders of work valued more than Rs. 10 lakhs and upto Rs. 50 lakhs:-**a) For Areas:

- |                                 |          |
|---------------------------------|----------|
| i) Staff Officer (Mining)       | - Member |
| ii) Staff Officer(C)/Sr. Mgr(C) | - -do-   |
| iii) AFM                        | - -do-   |

b) For Company HQ:

- |                                     |          |
|-------------------------------------|----------|
| i) Dy. GM(Civil)                    | - Member |
| ii) Representative of GM(F)         | - -do-   |
| iii) Representative of GM(Plg/Proj) | - -do-   |

**(IV) For tenders of work valued upto Rs. 10 lakhs:-**a) For Area/Units:

- |  |          |
|--|----------|
| i) Agent/Colliery Manager              | - Member |
| ii) Manager(Civil)/Dy.Mgr.(Civil)      | - -do-   |
| iii) Finance Mgr.or his representative | - -do-   |

b) For Company HQ:

- |                                     |          |
|-------------------------------------|----------|
| i) Sr. Manager(Civil)/Mgr.(Civil)   | - Member |
| ii) Representative of GM(F)         | - -do-   |
| iii) Representative of GM(Plg/Proj) | - -do-   |

**4.13 Receipt and Acceptance of Tenders.**

The following procedures shall be adopted in respect of receipt, opening and acceptance of tenders.

i) The committee authorized to open the tenders should invariably date, initial corrections, conditions and additions in the Schedule of Quantities, Schedule of Materials issued and Specifications and other essential parts of contract documents irrespective of fact whether they contain or do not contain any corrections or over writings etc. On all pages of tender documents not containing corrections, conditions, and additions and over writing etc. the tender committee should record the fact in writing at the end of those pages individually.

ii) The Committee should mark all corrections, conditions, additions and over writings and number them and attest them in red ink. In case of a number of corrections in any rate, either in words or in figures or in both, the number of corrections marked should be allotted independent numbers serially and not one number to represent all the three corrections. In case of more than one correction where the correction is not legible, the rate should be written afresh in the hand of the officers opening the tenders.

iii) The number of such corrections and over writing must be clearly mentioned at the end of each page of Schedule attached to the tender paper and properly attested with the date. Any omission observed should also be brought out clearly on each page of the Schedule.

iv) The corrections, conditions, additions and over writings should be allotted separate numbers, i.e. corrections should start from 1, 2, 3 etc. and over writing should similarly start separately from 1, 2, 3 etc.

v) Any ambiguities in rates quoted by tenderers, in words or figures, must be clearly indicated on each page of the Schedule attached to the tender to which it concerns.

vi) In case where the contractor has quoted rates in rupees and no paise is mentioned the word "only" should invariably be initiated and dated with suitable remarks at the end.

vii) Where the contractors have omitted to quote the rates in figures or in words, the omission should be recorded by the Officers opening the tender on each page of the Schedule.

viii) In case of item rate contract, the contractor must write the rate in words and the defaulting contractors must be made aware of rejection of the tender on this account.

ix) The contractor must fill the tender documents carefully and properly providing honestly all information's sought for. They should avoid quoting absurd rates and avoid making too many corrections in the tender documents. All the pages of the tender document must be signed and properly authenticated. If any contractor fails to comply with the requirement, this may lead to possible rejection of the tender.

x) The tenders should be opened in presence of authorized/accredited representative of the Tenderes who wish to be present and no unauthorized person should be allowed to be present.

#### **4.14 Withdrawal of Tenders by Contractors.**

Once the tenders have been submitted, the tenderers will not have the option to withdraw offer within the validity period. If any tenderer withdraws his tender before the expiry of validity period or makes any modifications in the terms and conditions of the tender which are not acceptable to the Company, then the Company shall, without prejudice to any other right or remedy, be at liberty to forfeit the Earnest Money and also suitable actions like banning ,delisting etc .could be contemplated against such erring contractor by the Company.

#### **4.15 Late and Delayed Tenders.**

Late and delayed tenders; unsolicited post tender offers and pool tender revisions shall not be accepted at all without any exception.

#### **4.16 Opening and Evaluation of Tenders.**

As soon as the approval of constitution of the tender committee is received from the competent authority, the tender committee members are intimated about the same along with the date and time of opening of the tenders. The tender committee members may be present at the time of opening of such tenders or depute their representatives to be present at the time of opening. The tenders are opened in the presence of at least 3 members of the tender committee or their representatives. The tender should either be in two envelope or two part system as given in details hereinbefore.

In case where tenders are submitted in two parts, Part-I is opened first and evaluated. Thereafter the Part-II i.e. price bid of only those contractors are opened, whose Part-I offer/technical bids are found acceptable. The same procedure will be followed in case of two envelope system also.

The tenders are opened in the presence of the tenderers or their accredited representative who wish to be present at the place and time as indicated in the notice inviting tender.

The number of tenders received, the particulars of Earnest Money and the names of the representatives who participated in the opening of the tenders and the names of the TC members who were present at the time of the opening of the tenders are recorded in the tender opening register.

Technical section attached to the office of the CGM(C)/GM(C) or Staff Officer(C) shall prepare the comparative statement of all the tenders received and work out the reasonable working rates for the work as tendered. In the technical section attached to the CGM(C)/GM(C) or Staff Officer(C), an officer of not less than E-4 rank should be nominated to carry checks of the tenders and also preparing comparative statement. He may be assisted by the Estimating Officer/Estimator/Accountant attached to the Office of the CGM(C)/GM(C) or Staff Officer(C).

##### **4.16.1 Comparative Statement:**

The detailed arrangements for proper check of Tenders and preparation of comparative statements are left to the Civil Department but any such arrangements must provide:-

a) The employees entrusted with the work date and initial all papers, the calculation of which they have checked and that all working sheets are preserved.

b) If on checks there are difference between the rate given by the Contractor in words and figures or in amount worked out by him, the following procedure shall be followed:-

i) When there is a difference between the rates in figures and in words, the rates which corresponds to the amount worked out by the Contractor shall be taken as correct.

ii) When the amount of an item is not worked out by the contractor or it does not correspond with the rates written either in figures or words, then the rates quoted by the Contractor in words shall be taken as correct.

iii) When the rate quoted by the Contractor in figures and in words tallies but the amount is not worked out correctly, the rate quoted by the Contractor shall be taken as correct and not the amount.

iv) In the case of percentage rate tender, the Contractors are required to quote their rates both in amount as well as in the percentage below/above the rates entered in the Schedule. In such cases in the event of Arithmetical error committed in amount by the contractor, the tender percentage and not the amount should be taken into account.

#### **4.17 Evaluation of Tenders.**

The tender committee examines the comparative statement prepared by the technical cell and wherever necessary also examines the original tender document to satisfy itself that all aspects/conditions of each offer has been properly evaluated with respect to the financial implications etc. and truly brought out in the comparative statement.

The tenders without earnest money are rejected unless they are exempted otherwise.

The deviations from the commercial terms and conditions and the tender specification are scrutinised before opening the price bid. Normally no deviations in the commercial terms and conditions indicated in the tender document are to be accepted.

However, the tender committee may decide to scrutinise the different conditions given by the tenderers and formulate and freeze the acceptable conditions and intimate all the tenderers about the same and give them an opportunity to revise their price bid if necessary before opening the same.

The price bids are opened at the time and place fixed for the same and the representatives of the tenderers and the committee members are informed in time to be present for the opening. In case where tenderers are given opportunity for revising their price bids, only the revised price bids are opened and the original price bids are to be kept in tact.

Original offer is opened along with the revised offer only in case the tenderer connects his revised offer with the original offer.

Price bids of the tenderer will have no condition and a comparative statement of the price bids offered by different tenderers is prepared for scrutiny of the tender committee. The price bids which are incomplete and not submitted as per the instructions given in the tender document are rejected.

Bidders who met the minimum qualification criteria will be qualified only if their available bid capacity is more than the updated estimated cost.. The available bid capacity will be calculated as under:

**Assessed Available Bid capacity = ( A x N x 2-B)**

**where ;**

A = Maximum value of Civil Engineering works executed in any one year during the last five years (updated to present level @ 5% per calender year) taking into account the completed as well as works in progress.

N= Number of years prescribed for completion of the works for which bids are invited.

B= Value, at present price level, of existing commitments and on going works to be completed during the next.....months (period of completion of the works for which bids are invited).

Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements, and/or record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.

Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

**(A) Existing commitments and on going works.**

Description of Work	Place & State	Contract No.& Date	Name and address of Employer	Value of Contract (Rs.lakh)	Stipulated period of completion	Value of works remaining to be completed	Anticipated date of completion.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)

**(B) Works for which bids already submitted.**

Description of work	Place and state	Estimated value of works (Rs. lakhs)	Stipulated period of completion	Date when decision is expected	Remarks if any.
1	2	3	4	5	6

**Works performed as prime contractor (in the same name) on works of a similar nature over the last five years.\*\***

Project Name	Name of employer	Description of work	Contract No.	value of contract (Rs. lakh)	Date of issue of work order	Stipulated period of completion	Actual date of completion*	Remarks explaining reasons for delay and work completed.

**Quantities of work executed as prime contractor (in the same name and style) in the last five years\*\***

The table given below is a typical example & the contents may vary depending upon the nature & scope of work.

Year	Name of the work	Quantity of work performed(cum)			Remarks (indicate contract ref.)*
		Cement concrete including RCC & PCC	Masonry	F/Works.	
<b>1999-2000</b>					
<b>2000-2001</b>					
<b>2001-2002</b>					
<b>2002-2003</b>					
<b>2003-2004</b>					

\* Enclose a certificate(s) from Engineer(s)-in-charge

\*\* Immediately preceding the financial year in which bids are received..



**THE SYSTEM OF DETERMINATION OF BID ASSESSMENT CAPACITY AS ABOVE WILL BE USED ONLY IN CASE OF WORKS OF VALUE OF OVER Rs. 1 CRORE.**

**EVALUATION REPORT:** The Evaluation report will be prepared by a committee comprising representatives from the Contracts, Engineering and Finance Departments or such departments of the company as are handling this task. It will evaluate bids only on the basis of set criteria which will be clearly stated in the bid documents. It will not, nor will it be compelled to change the criteria, after the price bids have been opened. No document presented by the bidder after the closing date and time of the bid will be taken into account by the Evaluation committee unless it is of a purely technical nature which has no bearing financially on the contract and which does not seek major changes in technical specifications given in the bid documents. If a bidder offers a rebate unilaterally after the closing date and time of the bid, it will not be taken into account for evaluating purposes by the Tender Committee, but, if that bidder emerges as the lowest evaluated, the rebate offered will be taken into account by the Head of the department co-ordinating the contract, while forwarding the Tender Committee's recommendations to the accepting authority and while awarding the contract. The Tender Committee's report will be self-contained, clear and unambiguous. If any cost compensation is carried out on account of technical deviation or on other factors, it will be mentioned in the evaluation report, in terms which can easily be understood by non-technical officials.

If the prices quoted are above or below the upto date cost estimate by a percentage considered abnormal, say 10%, the Tender Committee will give, after consulting the Cost Engineering Department, the reasons for such variation. Cogent reasons will be given for rejecting bids as non-responsive.

**ITEMWISE EVALUATION:** If the bid of the successful bidder is seriously unbalanced in relation to the estimate of the cost of the work to be performed under the contract, the company may require the bidder to produce detailed price analysis for any or all items of the bill of quantities, to demonstrate the internal consistency of these prices with the construction method, and schedule proposed. After evaluation of the price analysis, the company may require that the amount of the performance security is increased at the expense of the successful bidder to a level sufficient to protect the company against financial loss in the event of default of the successful bidder under the contract. The definition of seriously "unbalanced bid" will no doubt vary from organisation to organisation and from contract to contract. It is therefore, essential that before bids are called for, the Cost Engineering Department must fix the price above or below which the pricing of an item would be termed as seriously unbalanced. If the pricing of the bidder is such that he is likely to garner a major portion of the value of the contract at the initial stage of the project itself, the bid will be evaluated appropriately after carefully assessing the resultant fund flow.

In case a bid is indicated as seriously unbalanced then the TC will necessarily ask for submission of detailed analysis of rates from the bidder in order to come to a conclusion. In the event of acceptance of seriously unbalanced bid then the performance security/security deposit may have to be increased in a manner so as to protect the interest of the company.

The concept of fund flow may be adopted for works valued at over Rs. 2 core since for smaller works the procedure may be cumbersome & irrelevant.

#### **4.17.1 Allowable Variation for Acceptance of Tenders.**

After ascertaining the justified rate, the variation in award of work should generally be  $\pm 10\%$  of the justified rate.

#### **4.17.2 DEVIATION:**

Deviation sought by the bidders; whether they are commercial or technical deviation; must only be given in the schedules prescribed for them. Any willful attempt by the bidders to camouflage the deviation by giving them in the covering letter or in any other documents than the prescribed schedules may render the bid itself as "Non-responsive".

**4.18** Any of the following methods shall be adopted for aiming at the justification of the rate:

i) Analysing rates of major items on the whole costing 80% of the estimated cost put to tender based on prevalent market rates of materials, labour and carriage etc. as per standard analysis of rates of N.B.O/C.P.W.D. and then working out the percentage on this basis.

ii) Calculating the increase in cost due to :

- a) Increase in rates of stipulated materials over those adopted in schedule of rates used for estimate.
- b) Increase in rates of non-stipulated materials.
- c) Increase in labour cost.

Adoption of a particular method shall be decided judiciously by CGM(Civil)/ GM (Civil)/ SO(Civil).

In case of second method while calculating increase in cost, 2.5% (two and half) for handling charge and 10% as contractor's profit and overhead shall be added for stipulated materials. Similarly for non-stipulated materials difference in cost shall be worked out by adding 10% on material cost and 10% on applicable schedule of rates cost.

The cost of carriage should be calculated separately for major materials with leads involved:

- a) For major stipulated materials.
- b) For major non-stipulated materials like bricks, aggregates, sand, timber and non-stipulated steel.
- c) Other materials like Terrazzo tiles, A.C.sheets, Sanitary fittings should be inclusive of carriage and this need not be calculated separately.

Increase in labour cost shall be worked out for increase in minimum wages of the unskilled labour.

The arithmetic sum of the weighted percentage as worked out for the above shall be justified percentage above the estimated cost.

#### **4.18.1 Abnormally High Rate(AHR) and Abnormally Low Rate(ALR) Items.**

Abnormally high rates & abnormally low rates in the item rate tenders shall be regularized and dealt as per details given below:

i) For identification of AHR & ALR items the ceiling of +/- 20% respectively ; when compared with the updated estimated rate ; is considered as reasonable. Updating shall be done after adding percentage calculated as per system laid down earlier on the estimated rate.

ii) Variation in Quantity during execution on quoted rate for AHR & ALR items shall be permitted upto +/- 25% of the Quantity provided for items of work below plinth level & +/-5% of the quantity provided for items of work above plinth level.

iii) Quantity variation beyond the limit mentioned at ii) above shall be dealt by arriving at new rate based on prevalent market rates of materials and labour analysed as per standard analysis of rate of N.B.O./ C.P.W.D. Payment of extra quantity over the permitted quantity of +/- 25% and +/- 5% (as the case may be) would be made on the basis of the new analysed rate or the quoted rate whichever is less.

iv) For identified abnormally low rate ( ALR) items, the contractor will be required to deposit with the company the difference in amount calculated between the departmental justified rate multiplied by the quantity of a particular ALR item and the ALR rate quoted by the contractor multiplied by the quantity of the same item. The total amount to be deposited will be the sum total of all the identified ALR items calculated as per the method outlined above.

The amount so retained will be refunded on successful completion of the individual ALR items of work.

#### **4.18.2. Royalty/ Cess on Minor Minerals.**

The Act governing Royalty/Cess on Minor Minerals is a state subject Therefore it's application will depend on respective legislation in force at the place of work.

#### **4.19 Recommendation for Award of Work**

Based on the above scrutiny/ examination of the valid tenders/ price bids the TC may recommend the award of work to the lowest tenderer(L1) provided :

a) The overall amount for the contract as well as rates for individual items of work quoted by L1 are justified, competitive and reasonable/ workable when compared to comparable rates such as prevailing market rates (wherever possible and practicable), schedule of rates of the company or rates recently awarded for similar jobs in the company and in conformity with the guidelines given at Cl.4.18.

b) it is not obligatory to recommend the award of work to the lowest tenderer in any case . In case the lowest tender is found to be unworkable and impractical the same may be superseded furnishing sufficient reasons and next lowest offer, if reasonable, be considered. One or more offers from the lowest end may be superseded by furnishing sufficient reasons against each in order to fix-up a suitable agency.

**4.19.1** The department calling the tenders should submit to the competent authority to accept the tender the following information's in the format given below after receipt of the recommendation of the tender committee.

**MEMO FORWARDING TENDERS TO ACCEPTING AUTHORITY**

1. Name of work :

2. Estimate No :

3. Ref. to technical sanction :

- i) Scope of work :
- ii) Authority :
- iii) No. & date :
- iv) Amount :

4. Ref. to financial concurrence to estimate :

- i) Authority :
- ii) No.& date :
- iii) Amount :

5. Ref. to administrative approval :

- i) Authority :
- ii) No.& date :
- iii) Amount

6. Ref. to approval of NIT :

- i) Authority :
- ii) No.& date :
- iii) Estimated amount put to tender :

7. Ref. to publicity :

- i) Date on which NIT was placed on notice board in CGM(C)/GM(C)'s Office/  
SO(C)'s Office/ Unit Office :
- ii) Date on which it was circulated to other offices, if so :
- iii) Name of Newspapers (with dates) in which the NIT was actually published :

8. i) The date & time at which tenders were due to be received in CGM(C)'s Office/  
GM(C)'s Office/ SO(C)'s Office :  
ii) Postponed date and time, if any :  
iii) Reasons for postponement :  
iv) Ref. to publicity in regard to postponement of tenders :
9. The date from which tenders were available for sale to contractors:
10. Particulars tenders sold :  
i) No.of tenders sold :  
ii) No.of tenders received :
11. Opening of Tenders:  
  
(i) Date and time at which tenders were due to be opened :  
(ii) (a) Date & time at which tenders were actually opened:  
(b) Name & designation of officers who actually opened the tenders :  
(iii) Names of contractors present at the time of opening of tenders:  
(iv) Name and designation of any other person present:  
(v) Have all the contractors, if not exempted, deposited earnest money in proper form:
12. Date on which validity of tenders expires :
13. Ref.to submission of TCR by the tender Committee to CGM(C)/ GM(C)/ SO(Civil)  
No.and Date :
14. Reference to submission to finance  
No and Date :
15. Ref.to concurrence of finance.  
No and Date :  
Amount :
16. Ref.to submission to approving authority.  
No and Date :

**(CGM(C)/GM(C)/SO(C))**

#### **4.19.2 General Guidelines for Negotiations**

In no case negotiations other than with L1 tenderer will be held.

- i) Work should be awarded to L1 without post tender negotiations if the rates are reasonable.
  - a) If rates are not reasonable, negotiations with L1 only may be undertaken to arrive at a reasonable rate.
  - b) In case negotiations with L1 do not yield a reasonable rate, re-tendering should be done.

However, in case there is an emergency and the time required for retendering cannot be allowed, the case of awarding the work to the L1 tenderer at the negotiated rate may be considered by an authority one step higher than the otherwise competent authority after recording the reasons.

No negotiations may be resorted to in order to bring down the rates when they are only marginally in excess of the lowest rates received and accepted for similar works in the past. In order to ensure that the sanctity of the tender system is not violated and to avoid a tendency to make tenders tentative rather than competitive, it is to be ensured that excess in rates upto the percentage marginal limits as indicated below is ignored.

<u>Value of Works</u>	<u>Limit Marginal</u>
a) For works costing upto Rs.2.5 Lakhs	5%
b) For works costing above Rs.2.5 lakhs and upto Rs.25 lakhs	2.5%
c) For works costing over Rs.25 lakhs.	1%

If there is more than one lowest bidder either original or revised, recommendation to be decided on the basis of comparative technical superiority amongst them, where splitting up of work is not considered necessary or feasible.

The tender committee submits final recommendations in detail along with minutes of the negotiations and decision of the tender committee at each stage. The tender committee recommendations with the supporting documents are sent for approval of the competent authority through associated finance.

#### **4.20 Acceptance of Single Tender**

There are occasions where in response to call for tender only single tender is received. The powers of accepting such single tender shall be as per delegation of power of the accepting authority.

#### **4.21 Acceptance of Offer :**

Letter of Intent is an acceptance of offer by the company and it need not be accepted by the tenderer. But the tenderer should acknowledge the receipt of order within 10 days of receipt of Work Order and any delay in acknowledging the receipt would be treated as a breach of contract and compensation for the loss caused by such breach will be declared by the company by forfeiting EMD/Bid bond.

#### **4.22 Banning and Suspension of Business**

In case of such contractors who indulge in malpractices like bribery, corruption etc. by their proprietors or the employees, whose proprietors, partners or representatives have been convicted for offences involving moral turpitude, who are found guilty of withholding

Government/ Company dues forcibly without valid reasons and such disputes can not be placed within the ambit of Arbitration, who are acting prejudicial to the interests of the company, shall be placed under the category of Banning and Suspension of Business depending upon the nature of offence committed with the approval of CMD of Subsidiary Company or Chairman, CIL.

#### **4.23 Banned or Delisted Contractors.**

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

#### **4.24 Sub-contracting.**

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

## **5. COMMENCEMENT AND EXECUTION OF WORK**

### **5.00 Commencement of Work**

The contractor is asked to commence the work within 10(ten) days of issue of award of work or handing over of site whichever is later. In some cases, mostly in turnkey contracts, the work is to be commenced after execution of contract agreement. In such cases provision of a time limit of 30 days from the issue of work-order for execution of agreement should be made in the work-order itself to avoid delay in commencement of work. However, in the interest of work and also for saving time, the contractor may be allowed to start the work before execution of the agreement after the department issue a work order/tender acceptance letter to the contractor. Failure on the part of the contractor to execute an agreement, within 30(thirty) days time allowed by the department after the acceptance of the tender, will be considered as just cause for the cancellation of the award and forfeiture of his earnest money.

### **5.01 Handing Over the Site**

Availability of clear site must be ensured before issue of tender notice. After the issue of work order or the tender acceptance letter to the contractor, communication shall be sent to the contractor in writing stating the date of handing over of clear site for the work and requiring him to start the work forthwith as per clause 5.02. Clear site shall be handed over to the contractor immediately after issue of letter of acceptance of tender by the Company.

### **5.02 Date of Commencement and Completion of Work**

The contractor shall start the work within ten days of the issue of work order/tender acceptance letter or handing over of site or reasonable number of drawings or within the period of mobilisation as allowed in the work order for starting the work in special circumstance whichever is latest.

The time allowed for the completion of the work and the date of commencement of work and date of completion of work are recorded in the agreement. Time being the essence of the contract, the contractor shall submit his detailed programme of work which will be the basis for course of actions to be taken by the contractor, to complete the work within schedule time. This programme shall be based on the date of commencement and scheduled date of completion as per agreement. This will form a part of the contract between the contractor and the department. The programme will be the basis on which the Engineer- in-Charge of the work will draw up requirement of funds and departmental materials on various stages of planned progress.

**5.02.1** The Engineer In charge of a work may be from CGM(C) to Dy .Manager(C)/SE(C) level to be nominated by the competent authority of the company for the purpose of operating a particular contract and the same is to be indicated in the work order/contract by the authority issuing the same.

The Engineer-in-Charge /Designated officer-in-Charge will be clearly defined in the contract document. Engineer-in-Charge/ Designate Officer-in-Charge who is of an appropriate seniority, will be responsible for supervising and administering the contract,



certifying payment due to the contractor, valuing variations to the contract, awarding extension of time and valuing compensation events. The Engineer-in-Charge/Designated Officer-in-Charge may further appoint his representatives .i.e. another person/project manager or any other competent person and notify the contractor who is directly responsible for supervising the work being executed at site, on his behalf under the delegation of powers of the concerned company. However, overall responsibility, as far as the contract is concerned, will be that of the Engineer-in-Charge/ Designate Officer-in-Charge.

### **5.03 Programme and Progress of Work**

5.03.1 As soon as the agreement has been signed, the contractor should draw up and submit a detailed programme of execution using techniques of project monitoring such as BAR CHART/PERT-CPM etc. in consultation with the Engineer-in-Charge so as to complete the work within schedule time.

5.03.2 For work of value of upto Rs.1 crore the detailed programme should be drawn in the form of Bar Chart and for work of value more than Rs.1 crore the detailed programme should be drawn using PERT/CPM technique.

5.03.3 The preparation of a comprehensive and carefully considered programme for the execution of the works, the periodic revision of that programme as circumstances may demand, and the regular monitoring of planned and actual progress constitute the most important part of the work. Without a programme the Engineer cannot accurately determine when interdependent works should be started so as to ensure completion of the whole scheme on a prescribed date. An important point is that from this programme, particulars of the likely financial requirements during the period of construction can be worked out to arrange for fund and timely payment of bills.

5.03.4 The drawing up of a programme at the beginning of the work does not mean that it is drawn up once and for all and cannot be changed. In its early stages the programme will probably consist of salient dates on broad lines and later in detail. This process is largely a matter of trial and error and requires a considerable amount of time and thought. For not only does it necessitate consideration of alternative methods and the effect of each event on the others, but it also results in a orderly arrangement of events and in ultimate real saving of time and cost. The programme is therefore an important document, and should be discussed and agreed by all concerned.

5.03.5 Actual progress vs .planned progress shall be reviewed regularly and for this purpose review meeting within the department at various levels is a must. Further, the contractor will be called in the review meeting also, if required, so that corrective measures against foreseeable delays can be taken well in advance.

Such a control in progress enables the Engineer to speed up the operation that has fallen behind or to take appropriate steps to readjust subsequent operations when something has gone wrong. In other words it ensures the work to be carried out in an orderly way according to the programme.

#### **5.04 Construction Surveys**

The terms construction survey means all the Engineering surveys necessary for the execution of the work to its final completion. When the project is too large to be supervised by the regular persons, special survey team is generally posted for the construction work.

A good practice for initiating survey is to make an inspection of the whole project on foot with layout and other plans in hand. This permits each member to become familiar with the various physical features of the area and their relation to the project. When this is done setting out may be commenced.

The first requirement in construction survey is to check the alignment if already established, to see if it is in accordance with the final plans. It is also necessary to check all reference points of the alignment and if there is a possibility that these points may fall within the construction limit, they should be re-established beyond construction limits. Consideration should also be given to the establishment of additional reference points. All such marks established during the survey should be checked for location and elevation. If the reference line is not already established, it should be established now by fixing pegs/ stakes at all salient points. It is a good practice to establish essential grid references and levels right at the time of handing over the site to the contractor in writing.

#### **5.05 Setting out**

The contractor shall be responsible for the true and proper setting out of the works in relation to original points, lines and levels of reference given by the Engineer in writing and for the correctness, subject as above mentioned, of the position, levels, dimensions and alignment of all parts of the works and for the provision of all necessary instruments, appliances and labour in connection therewith. if, at any time during the progress of the works, any error shall appear or arise in the position, levels, dimensions or alignment of any part of the works, the contractor, on being required so to do by the Engineer or the Engineer's representative, shall at his own cost, rectify such error to the satisfaction of the Engineer or the Engineer's representatives, unless such error is based on incorrect data supplied in writing by the Engineer's representatives in which case the expense of rectifying the same shall be borne by the Employer.

The checking of any setting out or of any line or level by the Engineer or the Engineer's representative shall not in any way relieve the contractor of his responsibility for the correctness thereof and the contractor shall carefully protect and preserve all bench marks, sight rails, pegs and other things used in setting out the works.

#### **5.06 Increased or Decreased Quantities**

In any running work, modification of original plans to suit ground realities becomes often necessary. These modifications in turn affect the original schedule of quantities appended to the agreement.

The right is reserved by the department at any time during which the contract is in force, to make such alterations, in the plans or the quantities of the work as may be necessary. Such alteration shall be ordered in writing. Further, the quantities of any items of work may vary from the quantities indicated in the schedule of work due to unforeseen or other conditions. Alterations in quantities shall not be considered as a change in the conditions of the contract nor invalidate any of the provision thereof.

However, such deviation in quantities or total amount in a particular contract shall be dealt with as under:

- i) More than 10% deviation should require approval of next higher authority but total amount should be within the power of the next higher authority.
- ii) In case of Board being the original sanctioning authority power for approval of the revised estimate beyond 10% should be put up to Board for approval.
- iii) In case of deviation of more than 10% in respect of individual items in item rate contracts and if the Revised Estimate value remains within or equal to the Agreement Value only technical sanction of CGM(C)/GM(C) will be enough for such revised estimates. In such cases no separate financial concurrence is necessary when the Revised Estimate value remains within or equal to the Agreement Value.

However, for above cases, the extra items of work, if any, will have to be sanctioned as per the standard procedure. Deviation in respect of AHR & ALR items will have to be dealt with as per Clause 4.18.2

### **5.07 Omitted Items**

The right is reserved to cancel any items of work included in the contract agreement or portion thereof in any stage of execution if found necessary to the work and such omission shall not be a waiver of any condition of the contract nor invalidate any of the provisions thereof.

### **5.08 Extra, Excess and Substituted Items of Works & Repeat Orders.**

Deviations in the Bill of Quantity in a Contract normally comprise of following :-

- (a) New items of work, i.e. items completely new and in addition to items in the contract. These are commonly known as Extra or Additional items.
- (b) Substituted items i.e., items which substitute the existing ones or are taken up in lieu of those already provided in the contract. These can be with slight modification or partially omitting items of work in the contract. These are commonly known as substituted items.
- (c) Variation in quantities of items i.e. where there is considerable increase or decrease in the quantities of items of works available in Schedule of Quantity of the agreement.

**5.08.1** To obviate large scale deviations after call of tenders, the following instructions should be followed:-

i) Items of Deviations are required to be minimum and wherever exigencies arise approval from the competent authority is required to be taken with special care to high value items and low value items.

ii) It is the responsibility of the concerned In-charge of work to obtain approval in principle within seven days of commencement/ occurrence of such deviation from the Engineer in Charge as far as practicable in accordance with the delegated power.

iii) Payments for such deviated items of works shall be made in the running account bills of the contractor provisionally which have been agreed in principle by the Manager(C)/ Dy.Manager(C)/ In-charge of the work but not approved by the competent authority as per rates given below. The provisional rate to be paid should not exceed :-

(a) 75% of the rate recommended to the competent authority by the EIC if the rate is directly available in the SOR of the company.

(b) 50% of the rate recommended to the competent authority by the EIC if it is analysed item rate based on prevalent market rates.

iv) The deviation proposal for deviated item along with the rate recommended based on contract provisions should be sent from the Manager(C)/ Dy.manager(C)/ In-charge of the work within a fortnight ( 15 days) of occurrence/ commencement of the deviation to the competent authority for approval. If it is within the delegated power of S.O(C)/ Dy.GM(C), he will accord his sanction after obtaining financial concurrence within next fortnight.(15 days)

In case the sanction is to be accorded by Company Head Qtrs. proposal of Dy.Manager(C)/ In-charge of the work along with his recommendation shall be sent to GM(C)/ CGM(C) who will ensure sanction within next 30 days after obtaining concurrence of associate finance.

v) For ensuring quick disposal, weekly returns shall be sent by Manager(C)/ Dy. Manager(C)/In Charge of work to the SO(C)/Dy.G.M.(C). In case of undue delay caused at any level, disciplinary action shall be initiated against erring officials.

vi) While submitting the proposal for sanction of deviation the following documents shall be enclosed:

(a) Vouchers and proper quotations or any other publication shall be submitted in support of the market rates:

(b) Analysis of rates should be self explanatory and by proper drawings

(c) Remarks given by S.O.(C)/ Dy.GM(C) should be self-explanatory and the description of the item should be clear and properly worded.

(d) Copies of the Bill of Quantity of the agreement to be enclosed along with statements.

(e) Reference to sanction accorded in principle.

### **5.09 Rate for Extra Work**

The rate for extra items of work done shall be fixed as follows :

- a) In case of percentage rate tenders, if the rate for extra item of work executed is available in the approved standard SOR of the company it will be paid at the schedule rate plus or minus the accepted percentage as per agreement.
- b) In case of item rate tenders, the rate for extra item will be derived from the rate for similar item or near similar item of work available in the agreement schedule of work or by analysis of rates as at (c) below and lower rate out of the above two shall be considered.
- c) In case the rate for extra item is to be derived by analysis of rate, the same shall be fixed by analysis on prevalent market rate of materials and labour involved based on standard norms of analysis of all India standard SOR of NBO/CPWD.

In case of any difference between the contractor and the Engineer In charge as to the fixation of rates the matter may be referred to SO(C)/GM(C)/CGM(C) whose decision shall be final and binding on the contractor.

- d) In case of combined tender with partly item rate for non-scheduled items and partly percentage rates for SOR items, the rate for extra item shall be derived as at (b) above in case of non-schedule item rates and in case of percentage rates for SOR items the rate for extra item shall be derived as at (a).

#### **5.09.1 Part Rate :**

The payment of incomplete items of works may be allowed by the Engineer-in-Charge on 'Part Rate' basis in on account bills. However such Part Rate should not exceed 60% of the quoted & approved rate of individual items.

### **5.10 Extension of Contract Time for Completion**

The time for completion of the work will be specified in the contract and it is understood that the completion of work within the time specified is an essential part of this contract. If any delay in the completion of the work is likely to be caused by any of the following reasons viz.

- a) The execution of any modified or additional work,
- b) Delay caused by any written instruction of the Engineer in Charge.
- c) Any circumstances which are wholly beyond the control of the contractor and unavoidable.
- d) Delay arising out of act of God and in particular unprecedented flood and hostile acts, rebellion or civil war, political upheavals etc.

e) Increase in the overall value of work. The time of completion of the work shall, in the event of any deviation resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor as follows:

- i) In the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus.
- ii) 25% of the time calculated in i) above or such further additional time as may be considered reasonable by the Engineer -in -Charge.

Then the contractor immediately upon the occurrence of such delay shall give notice in writing to the Engineer-in-Charge and he shall be allowed a reasonable extension of time for completion in respect of delay caused by any of the above mentioned circumstances.

**A HINDERANCE REGISTER** shall be maintained by both department and the contractor at site to record the various hindrances encountered during the course of execution.

Provisional extension of completion time may also be granted by the competent authority as per delegation of power on the recommendation of the Engineer-in-Charge of the work during the course of execution of work reserving the right to impose/waive the clause relating to compensation for delay at the time of granting final extension of time depending upon the merit of the case. Extension of completion time is to be granted as per delegation of power.

#### **5.10.1 General Principles for Granting Extension of Time**

i) At the time of issuing notice inviting tenders for a particular work the Engineer-in-Charge should specify the time allowed for completion of the work consistent with the magnitude and urgency of the work.

ii) The time allowed for carrying out the work as entered in the contract shall be strictly observed by the contractor and shall be reckoned from the 10th day after the date on which the orders to commence the work is given to the contractor.

iii) The work shall throughout the stipulated period of the contract be proceeded with all due diligence (time being deemed to be the essence of the contract ) on the part of the contractor.

iv) To ensure good progress of work during the execution, the contractor shall meticulously follow the preset time and progress chart and in the event of slippages in one segment, all efforts will be made to liquidate the slippages in the next stages.

v) If the contractor shall desire an extension of time for completion of work on the grounds of his having been unavoidably hindered in its execution or on any other grounds as mentioned above, he shall apply in writing to the Engineer-in- Charge within 30 days of the hindrance on account of which he desires such extension as aforesaid, and the Engineer-in-Charge shall, authorise such extension of time if any, as in his opinion, (which shall be final) be necessary or proper with the approval of competent authority. Such extension shall be communicated to the contractor in writing by the company through Engineer-in-Charge within 30 days of receipt of such request from the contractor for granting of extension of time.

vi) Engineer-in-Charge shall grant extension of time for the completion of the work if the following conditions are satisfied :

- a) The contractor must apply to the Engineer-in-Charge in writing for extension of time.
- b) Such application must state the grounds which hindered the contractor in the execution of the work within the stipulated time.
- c) Such application must be made within 30 days of the date on which such hindrance arose.
- d) The Engineer-in-Charge must be of the opinion that the grounds shown for the extension of time are reasonable.

vii) The Engineer-In-Charge has the power to grant extension of time as per Delegation of Powers, but the orders on the application of the contractor connected with the agreement accepted by the authorities higher than the Engineer-in-Charge should be issued by him with prior approval of such authorities who have been given such powers to grant extension of time.

viii) The opinion of the Engineer-in-Charge, whether the grounds shown for the extension of time are or not reasonable, is final. If the Engineer-in-Charge is of the opinion that the grounds shown by the contractor are not reasonable and declines to grant extension of time, the contractor cannot challenge the soundness of the opinion by reference to arbitration.

The opinion of the Engineer-in-Charge that the period of extension granted by him is proper or necessary is not, however, final. If the contractor feels that the period of extension granted is inadequate he can require settlement/ arbitration on the question whether the period of extension is or is not proper or necessary.

ix) In case the contractor does not apply for grant of extension of time within 30 days of the hindrance occurring in execution of the work and the department wants the contractor to continue with the work beyond the stipulated date of completion for reason of the work having been unavoidably hindered, the Engineer-in-Charge can grant extension of time even in the absence of application from the contractor as per the following guidelines :

- a) Whenever any hindrance comes to the notice of the Manager(C)/ Dy.Manager(C)/ In Charge of the work, he should at once make a note of such hindrance in the register kept at site. He should also make a report to his S.O.(C)/Dy.GM(C) within a week of the occurrence of such hindrance.

The SO(C)/ DY.GM(C) should then grant necessary extension of time if it is within his competence, otherwise he must send a report to the CGM(C)/ GM(C) within a week of the receipt of the report from the Manager(C)/ Dy.Manager(C)/ In Charge of the work. The CGM(C)/ GM(C) should then pass orders within 15 days of the receipt of the report from the SO(Civil)/ Dy.GM(Civil).

b) In case where the sanction of the higher authority to the grant of extension of time is necessary, the SO(C)/ Dy.Mgr.(C) should forward the case with his views to CGM(C)/ GM(C) as soon as possible. If the orders of the higher authority are not received in time, he should extend the contract before the stipulated date actually expires so that the contract might remain in force but while communicating this extension of time, he must inform the contractor that this was without prejudice to Company's right to levy compensation under relevant clause of the agreement.

x) The period during which the contract remains valid is a matter of agreement and if the period originally set for the completion of the work comes to an end nothing short of agreement of the party can extend the subsistence and validity of the contract.

When the period fixed for the completion of the contract is about to expire, the question of extension of the contract may be considered at the instance of the contractor or the Department or of both.

The extension, in order to be binding, will have to be by parties agreement, express or implied.

It therefore, follows that if the extension of time is granted by the Engineer-in-Charge suo moto as per provisions of contract agreement and such extension of time is accepted by the contractor, either expressly or implied by his actions before and subsequent to the date of completion, the extension of time granted by the Engineer-in-Charge is valid. It is, therefore, necessary that the Engineer-in-Charge grants extension of time as per provisions of the contract even when the contractor does not apply for extension of time in order to keep the contract alive. If the contractor refuses to act upon the extension so granted by Engineer-in-Charge, it will attract the provisions of appropriate clauses of the agreement.

## **5.11 Recording Measurements**

5.11.1 Payments for all works done and for supplies made on the basis of measurements are recorded in measurement books(MB). It is a most important record since it is the basis of all accounts of quantities whether of work done or of materials supplied and payment made thereof. It is the original record of actual measurement.

5.11.2 All measurements should be neatly taken down in an authorised measurement book in ink issued for the purpose, and no-where else. Each set of measurement should commence with :-

- a) full name of work as given in the work order,
- b) location of work.
- c) name of contractor
- d) number and date of agreement/work order,
- e) date of commencement of work as per contract/actual
- f) date of completion of work as per contract/actual
- g) period of claim,
- h) date of measurement,
- i) name & designation of the person recording measurement



5.11.3 Each set of measurements should end with the statement "measured and entered by me" followed by the dated signature and designation of the person making the measurements in the measurement book. An abstract of cost should then be prepared which should indicate the total quantities, rate, unit & amount of each item of work. Based on the item wise amount total gross value of the bill is arrived at the end of the abstract.

The net amount payable is derived after making specified deductions and recoveries on account of security deposit, departmental materials/ equipments issued/lent for the work, secured advance, income-tax etc. from the gross amount of the bill. In preparing the abstract, reference should be given to the pages of measurement book in which the relative measurements are recorded.

5.11.4 As all payments for work or supplies are based on the quantities recorded in the M.B. it is incumbent upon the person taking the measurements to record the quantities clearly and accurately. He will also be responsible for the correctness of the entries in the column "Content" for the measurements recorded by him. If the measurements are taken in connection with a running contract account on which work has been previously measured, he is further responsible to ensure (1) that reference to the last set of measurements is recorded and (2) that if the entire job or contract has been completed, the date of completion is duly noted in M.B. If the measurements taken are the first set of measurements on a running account, or the first and final measurements, this fact should be suitably noted against the entries in the measurement book and in the later case the actual date of completion shall be recorded.

The signature of the contractor or his authorised representative should be obtained in measurement books after each set of measurements, with the words "I accept the measurements" In the case of illiterate men their left thumb impression marks should be obtained in token of acceptance attested by the Engineer-in-Charge.

5.11.5 Entries should be recorded continuously in the measurement book and no line should be left blank. No blank pages should be left and no page be torn out. Any pages left blank inadvertently must be cancelled by diagonal lines, the cancellation being duly authenticated.

5.11.6 No entry may be erased. If mistake is made, it should be corrected and initiated by the person recording the measurement and authenticated by the EIC. When any measurements are cancelled, the cancellation should be initialed by the person recording the measurements and supported by the dated initials of the officer ordering the cancellation or by a reference to his orders initialed by the officer who made the measurements. In each case the reason for cancellation should be recorded. Entries should be made in ink. Each measurement book should be provided with an index which should be kept upto date. Overwriting should not be done in any case.

5.11.7 In course of construction of any prestigious work, certain dismantling and modifications become necessary for bringing in permanent improvement in the scheme. Such demolition and dismantling should not be considered as loss and the cost should be absorbed in the contract price. The cost of such works be limited to 2 to 3% of the contract price. But the contractor who has done the job should be paid for such dismantling/ dismantled jobs after obtaining approval of CGM(C)/GM(C)/SO(C) and proper entries in the M.B.

**Where Electronic recording of measurements and preparation of bills are in vogue, the following item may be adopted :-**

Electronic recording of measurements and preparation of bills are the preferred method for large fast track project for timely payment and ensuring speedy completion of the work. This will result in equitable and effective deployment of manpower to more productive areas like quality control supervision etc. by diverting the manpower presently required for measurements and M.B's and preparation of bills.

Measurements of deviations or items not covered in the drawings are to be recorded in page numbered triplicate book jointly by the contractor or his authorised representative and representative of EIC for execution section. One copy is to be forwarded to the billing section, one copy shall be submitted to the execution section and the balance copy will be retained by the contractor.

The contractor will submit his bills in approved proforma in quintuplicate to the Engineer in Charge giving abstract and detailed measurements for the various items of work executed depending on progress of work achieve. The Engineer-in-charge will take necessary steps to get the bill verified as per standard procedure acceptance.

**Billing section shall maintain records of :**

- a) Joint Measurements
- b) Floppy containing measurements and recommended bill amount details.
- c) Hard Copy duly accepted and signed for measurements and bills.

Billing section will check the contractors' bill on the basis of drawings and joint measurements and enter the data in the computer. Bill will be prepared on the basis of abstract quantity proposed recovery etc. by the billing section by using computer.

**5.12 Method of Measurement and Tolerance :**

**5.12.1** Measurements of only completed work/portion of work should be recorded in Measurement Book.

**5.12.2** The location of measurement, should be clearly described so as to facilitate their easy identification.

**5.12.3** All work shall be measured net in the decimal system subject to the tolerances specified unless otherwise stated. IS 1200 shall be referred to the relevant parts for the method of measurement of works.

**5.12.4** Nominal size, tolerance, limits :- These terms are in common use in engineering practice. The "nominal size" is self-explanatory i.e. as specified. The use of the word "tolerance" indicates that it is recognized that the work is perfectly accurate and "tolerance" is

defined as "a difference of dimensions prescribed in order to tolerate unavoidable imperfections of workmanship". Consistently with reasonable cost of production for the kind of work refer to "limits" are the dimensions between which must lie the dimensions of the work; the difference between a limit and the nominal size is equal to the tolerance.

### **5.13 Measurements for Inadmissible Items**

In case of items which are claimed by the contractor but are not admissible according to the Department, measurements should be taken for record purpose only and without prejudice so that in case it is subsequently decided to admit the contractor's claims, there should be no difficulty in determining the quantities of such work. A suitable remark should however, be made against such measurements to guard against payment in the ordinary way.

### **5.14 Check Measurement**

**5.14.1** Recording of measurements by the technical staff & check measurements by the officers are important aspects of execution of any civil engineering work. Proper recording of measurements, check-measurements and maintenance of measurement books will avoid tampering of measurements. The following instructions should be strictly followed to avoid possible tampering of measurements.

i) The entries in the measurement books are made in ink and no line shall be left blank. Any blank page left between shall be crossed and attested by the concerned officers.

ii) The "Contents or area" column shall be filled before check-measurement and the check measuring officer as a rule shall see that the "Contents or area" column is duly filled in ink by the staff who recorded the measurements.

iii) The recording shall be consistent and generally in the sequence of length, width & height or depth or thickness.

iv) The location of work should be clearly described so as to facilitate their easy identification and checking.

v) The method of measurements shall be as per I.S.1200 and relevant parts shall be referred to for different works.

**5.14.2** The check measurement by the Engineer(C) and the Executive Engineer(C)/ Sr.Executive Engineer(C) shall be as per the norms given below :

i) A Register regarding issue of new M.B. and movement of the same is maintained at the office of the EIC/Designated Designated Officer-in-Charge. All M.B.s at the issuing office should be serially numbered. Each new M.B. should be checked and certified by the EIC/Designated Officer In charge that the same contain so many printed pages and issued to the concerned technical staff(Engineering Asst.(C)/ Sr.Overseer(C)/ Overseer(C).

ii) Measurements shall normally be recorded by the Overseer(C)/ Sr.Overseer(C)/ Engg.Asstt(C) concerned directly in the M.B. Measurement may also be recorded by a designated Engineer irrespective of rank.

iii) All the measurements for concealed items (reinforcement, earth work, foundation work etc.) shall be directly entered in the measurement book & 100% check measurement for the same should be done by the Engineer(C). The EE(C)/Sr.EE(C) shall make 25% check measurement of each such items. All entries checked should be initialed by the checking authority.

iv) In case of exposed work, the Engineer(C) shall check measure 50% and EE/Sr.EE(C) shall check measure 10% of the measurements pertaining to major items

v) In case of road works, the total materials required for each 100 mtr. of road length shall be collected in full before any measurement is taken. The measurement of stack, borrow pits etc. shall be done from the commencement in the direction of increasing chainage for left side first and then for right side of works.

No material shall allowed to be used without proper stacking, measurement and check measurement. Each item of work involved in box cutting. WBM layers, bituminous concrete and top finishing should be measured before laying of subsequent layers.

vi) Accountant while checking MBs shall ensure that check measurements have been done as per norms.

vii) Officers making check measurement shall record at the end of the measurement in the MB, the items and the pages check measured by them with dated signature.

viii) In case the work is supervised by senior engineers other than Sr.EE(C)/EE(C), the check-measurements shall be done by senior engineers according to the stipulations made in the foregoing clauses.

### **5.15 Acceptance of Measurement & Check Measurement**

In order to avoid disputes, it is essential that the contractor signs in token of his acceptance of measurement as well as check-measurement of materials supplied or work performed. The date of measurement or check measurement should therefore be intimated to the contractor in advance requiring him to be present at the site of the work for the purpose of attending the measurement or check measurement.

If the contractor accepts the measurement of check measurement he should certify his acceptance on the last page of the set of measurements by recording "measurements accepted" with his dated signature. If the contractor is not present in spite of reasonable notice, the officer shall proceed with the measurement or check measurement and the contractor's acceptance should be obtained as soon as possible. In case of disagreement, the staff officer of the Area should himself inspect the work, perform such check measurements as are necessary, and his decision will be binding on the contractor.

### **5.16 Inspection of Works**

**5.16.1** Regular inspection of works by S.O(C)/ or any officer nominated by S.O(C)/ Dy.G.M(C)/ or any officer nominated by CGM(C)/ GM(C) shall be done and a certificate t this effect should be attached with the final bill.

Such inspection by SO(C)/ Dy.GM(C) or any other officer nominated by SO(C)/ GM(C) shall be carried out for works upto Rs.50 lakhs and for works beyond Rs.50 lakhs, the inspection shall be carried out by Dy.GM(C)/ Hqrs. or any other officer nominated by GM(C)/CGM(C) for the purpose. The Engineer-in-charge of the work should request within 15 days of the physical completion of the work, the SO(C)/ Dy.GM(C) or CGM(C)/ GM(C) as the case may be, to carry out their inspections and record the required certificate.

**5.16.2** The officer carrying out the aforesaid inspections is required to record the following certificate within a period of 30 days from the date of physical completion of the work as intimated by the Engineer-in-Charge of the work.

" I have inspected the work of ..... on ..... contract value of which is Rs..... vide agreement No..... As a result of this inspection and my previous inspections. I find that the work has been carried out generally to specifications and drawings and has been completed satisfactorily. There are no noticeable defects, except for the following :

1. ....
2. ....

These defects should be rectified by the contractor/ department at his cost, action for which should be taken in terms of the contract by the Engineer-in-charge of the work.

**( Inspecting Authority )**

**5.16.3** The above certificate will be attached with the office copy of the Final bill of the contractor and remain on the record of the department. The Engineer-in-charge of the work shall not make final payment till this certificate is recorded. This certificate, however, will in no way reduce the responsibility of the Engineer-in-charge and other concerned Engineers and Supervisory staffs for due check of the work as required.

### **5.17 Loss of Measurement Book**

When a Measurement Book is lost, an immediate report of the facts of the case together with an explanation of all parties concerned responsible for the loss should be made promptly to the Staff Officer(Civil)/ GM(Civil)/ CGM(Civil), who is empowered to write off the lost Measurement Books. Such losses for write off should be reported in the Proforma as at Appendix-11.

## 6. PAYMENTS

**6.00** Payments for all the works done/ supply made by the contractors are made on the basis of measurements recorded in the measurement books. Contractors bills may be submitted in any one of the following forms :-

- a) Running on account bill
- b) Final bill.

The running on account bill is meant for regular payment during the progress of the work. The running on account payment is generally made once in a calendar month or at the interval as stipulated in the Work Order/Agreement..

When, for any reason, monthly payment or running payment at the interval as stipulated in the agreement can not be made on the basis of recorded measurements, advance payments for alternate running bills may be made to contractors commensurate with the value of work done after obtaining approval of GM(C)/ CGM(C) in this regard. If no payment is to be made, this fact should be recorded with the reasons thereof in the measurement Book.

### 6.01 Passing of Bills.

6.01.1 The contractor's bill is to be prepared in the Bill Forms given at Appendix - 12 by the person recording the measurements. Before passing a contractor's bill for payment, the bill is to be checked and pre-audited by the Accounts Officer / Accountant as per the provisions of the respective contracts and standard practice. The accountal checking is done after the technical checking (i.e. check measurement) by the Sr.EE(C)/EE(C) and Engineer(C). The A.O./ Accountant will ensure that the check measurement by the Sr.EE(C)/ EE(C) and Engg(C) has been done as per the norms laid hereinbefore.

6.01.2 The A.O./ Accountant will thereafter carryout accountal checking of quantities, rates, amounts of respective items, rate and quantities of recoveries on account of stores issued, hire charges and deduction towards S.D., I.T., S.T. etc.

6.01.3 The A.O./ Accountant will prepare the memo of payment in M.B. and Bill Form and pay-order and put up for signature of E.I.C./S.O.(C) who will pass accept the bills for payments as per the delegation of powers of the Engineer-in-charge. A contractors' ledger (Appendix-13) will be maintained by the A.O./ Accountant to keep records of all payments made to the contractors. The ledger should be available for inspection by the Engineer-in-charge/ SO(C).

**N.B.** The contractors bills whether on A/C or Final, will be signed only by the officers as mentioned in the above clause "Passing of Bills". This will prevent delay in clearance & payment of Bills which gives rise to avoidable disputes with contractors.

In other words the bills in respect of Civil Engineering works will henceforth be sent directly to SO(C) for arranging payment from sub-area/colliery level by the concerned SE(C)/ Sr.EE(C), EE(C). If required, the SO(C), who is the Engineer-in-charge, may authorise/ sub-delegate some of his financial powers to the SE(C)/ Sr.EE(C) (as the case may be) for quick disposal of cases.

**The stages involved for preparation and payment of Contractor's Bill would be as under :-**

- i) Signature of E.A(C)/Sr.Overseer(C)/Overseer(C) in MB's, on required pages recording measurements, abstract of bill & the duly filled in bill form.
- ii) Signature of Engineer(C)/ EE(C) with appropriate check measurements in MB's & the bill form.
- iii) Signature of Sr.EE(C)/SE(C) with appropriate check measurements in the MB's & the bill form.
- iv) Signature of Engineer-in-charge is to be recorded as per definition as at Cl.5.02.1 as a token of acceptance for payment of the bill. The EIC may sign in the abstract of bill in the MB & the bill form. In between stage iii) & iv) accountal checking may be made by the concerned Divisional Accountant.

The above method for preparation & payment of contractors bill in respect of civil works will be followed strictly to ensure proper accountability. Otherwise, any officer not mentioned in the payment stages explained above signing a contractors bill will also be held accountable for correctness of the bill along with all other attributes associated with the contract/work.

**6.02 Checking of Bills by Accountant**

- i) The functions of the A.O./ Accountant attached to Sr.Executive Engineer(C)/ Executive Engineer(C)/ Engineer In charge are three fold.
  - a) as an accountant
  - b) as an internal auditor and
  - c) as financial assistant.
- ii) In discharging his duties he is expected to keep himself fully conversant with sanctions and orders passing through the office and with other proceedings of the office and its subordinate offices which may affect the estimates and/ or accounts of the civil works undertaken by the department. The Executive Engineer(C)/ Engineer In charge should see that the Accountant is given the fullest opportunity of becoming conversant with these sanction orders and proceedings to enable him to discharge his duty efficiently.
- iii) if any transaction or order affecting receipts or expenditure is such that might attract audit observations, the Accountant will bring this fact to the notice of the Executive Engineer(Civil)/ Engineer In charge with his reasons and obtain the orders of that officer. When there is a difference of opinion between the Accountant and the Executive Engineer(Civil)/ Engineer In charge, a note containing observation of both should be attached with the bill.
- iv) The Accountant should bring to the notice of the Executive Engineer(civil )/ Engineer Incharge all instances where the expenditure exceeds the financial limitation. if any serious financial irregularity is noticed by the Accountant it should be reported at once for the

information of the Executive Engineer(C)/ Engineer In charge and Area Accounts Officer/ concerned Accounts officer.

v) The Accountant has right to seek the advice of the Area Accounts Officer in all matters connected with the accounts of his department or on the application of financial rules and orders concerning which there may be any doubt.

vi) The Accountant will scrutinise and check the bills for Civil Engineering works prepared by the Engineering Assistant/ Sr.Overseer/ Overseer based upon the detail measurement as recorded in the measurement books and see that the bill is complete in all respect and is in accordance with the work order/ contract agreement. In respect of all the bills for civil construction work the area accounts office/ concerned accounts office will however, exercise necessary pre-audit in addition to the checks/ scrutiny exercised by the accountant.

### **6.03 Checking of on account bills**

Details of checking to be exercised by the Accountant in respect of on account bills relating to civil engineering works are given below:

- i) The work order/ contract agreement should contain signature with date of both parties
- ii) Balance of initial security deposit, if any, is deposited.
- iii) Bank Guarantee submitted against earnest money converted to ISD is valid or validity is extended if the same has already expired.
- iv) Where the work has started before issue of the work order, it should be supported by an "Urgency Certificate" from the competent authority.
- v) The date of measurement should be recorded in the measurement book.
- vi) The period of claim should be recorded in the measurement book
- vii) The accuracy of all arithmetical calculations of the contents recorded in the measurement book should be checked.
- viii) The rates adopted for various items of work should be in accordance with the work order/ contract agreement.
- ix) While checking the first on account bill, it should be ensured that the initial security deposit has been made by the contractor.
- x) The quantities of various works/ items should be within the provision of work order/ contract agreement subject to variation as per cl.5.06 or else covered by proper supplementary agreement/ work order issued in writing by the competent authority.



xi) Interim payment for excess work done against an individual item should not be more than 10% in excess of quantities of work provided in the work order/ contract agreement on the authorization of Engineer In charge and 20% in excess of quantities of work provided in the work order/ contract agreement on the authorisation of CGM(C)/ GM(C) or Staff Officer (Civil) as the case may be, subject to overall value of work not exceeding the agreement/ work order value.

xiii) Interim payment allowed on the authorisation of CGM(C)/GM(C) or staff Officer(C) for extra items of work done should not more than 10%, of contract agreement/ work-order value, when value of such extra items added together subject to value of total work done including excess quantities and extra items does not exceed the contract/ work-order value. Payment for such extra items shall be made in the running on account bills at the provisional rates as per cl.5.08.1 till these are regularised through revised estimate.

xiii) Contract Agreement no. and date, work order no. and date, date of commencement of work and date of completion of work as per agreement, extension of completion time granted by the competent authority, if any, should be correctly indicated in the bill.

xiv) it should be ensured that the bill has been signed by the contractor or the authorised representative of the contractor with date.

xv) it should be ensured that the persons signing the bill has been authorised by the contractor either by the power of attorney or by virtue of partnership deed and that such information has been notified to the Area Accounts Office/ concerned accounts office and EIC's office.

xvi) it should be ensured that a statement of material issued and to be recovered is attached to the bill supported by reference to Store issue challan etc. generally, all materials used in the work should be recovered and a certificate regarding the balance material should be given. The quantity consumed should be compared with the theoretical requirements to ensure that the required quantity has been used. Where the full quantity of material issued is not recovered, justification for postponing the recovery should be furnished. However, where the recovery for supply of materials has been spread over more than one running "on account" bill by order of competent authority, the compliance of standing instructions should be ensured.

xvii) The rates of recovery for such materials are to be scrutinised with reference to the agreement where a fixed rate has been provided in the agreement and the recovery should be made accordingly. Where the rate of recovery has not been indicated, the valuation will be done on the basis of the latest price to which 20% towards storage, supervision, freight etc. should be added to arrive at the provisional rate of deduction. The final recovery should be made on store issue rates as confirmed through sale bill by the Area Accounts Officer/ Area Store Office of concerned Accounts Officer/ Store Officer.

xviii) It should be ensured that other recoveries such as for supply of coal, rent, water and electricity charges and hire charges of plant and equipment etc. have been made properly.

#### **6.04 Checking of Final Bills**

In case of final bills the following additional aspects are to be seen and checked :

- i) Certificates of "No Claim" against the contractors by the Engineer-in-Charge.
- ii) Certificates of satisfactory completion of work to be issued by the Engineer-in-charge.
- iii) Certificate of inspection on completion of work to be issued by the SO(C)/ Dy.GM(C) or any other officer nominated by SO(C)/ GM(C) for works valued upto Rs.50 lakhs and by the GM (C)/ CGM(C) or any other officer nominated by GM(C)/ CGM(C) for the work valued more than Rs.50 lakhs as per cl.5.16.
- iv) Certificate of leak proofness in respect of building roofs or similar structure and certificate in respect of the fact that 6 months or one full monsoon has passed after completion of the construction of building/ structure or bridge etc. and that the defects if any has been rectified. This Certificate will be required only if the final bill is presented after expiry of the defect liability period.
- v) Indemnity Bond by the contractor against any claim by State Govt .towards Royalty for minor minerals.
- vi) Registration under sale tax for payment of works contract tax etc.
- vii) It should be ensured that the revised estimate regularising the variation in quantities and /or extra items executed and the extension of time of completion etc. have been sanctioned by the competent authority.
- viii) It should be ensured that a complete list of materials issued to the contractors against the particulars of recoveries already made from the on account bills is enclosed with the final bill.
- ix) It should be ensured that all recovery on account of hire charges, electricity, water supply etc. are fully made.

In addition to above, in case of any recorded observations by any authority on any item of works, clearance should be obtained from such authority or authority superior to them before release of final payments.

#### **6.05 Time Schedule for Payment of Bills**

The following time schedule for payment of bills, both running on account and final, are prescribed and shall be followed as far as possible :

- i) Payment of Running Bills - Within 1 month of presentation of the bill duly Passed & accepted for payment by the EIC.
- ii) **Payment of Final Bill**
  - a) For works upto 50 lakhs within 2 months of presentation of the bill duly passed & accepted for payment by the EIC.

b) For works over Rs. 50 lakhs within 3 months of present & accepted for payment by the EIC.

The Engineer-in-Charge of work shall be responsible for timely recording of final measurements for completed works, preparation of revised estimates and preparation of final bills. The RE and final bill shall be submitted within 3(three) months of completion of works.

#### **6.06 Payment for Excess Work**

During the execution of work divergence between what is planned and what is executed is common and it is possible to limit the deviations to a minimum by close monitoring and timely action as already explained hereinbefore. However due to unavoidable circumstances, the quantities actually executed on the close of work may be different from the original quantities. In order to ensure progress of work with excess of quantities over what was agreed, the SO(C)/ Engineer Incharge and CGM(C)/GM(C) are permitted to authorise interim payment for excess work as follows :

i) Engineer-in-Charge may make interim payment for work done upto 10% in excess, if any, of the quantities of work against individual item as per contract subject to overall value of work not exceeding the contract value.

ii) The CGM(C)/ GM(C) of the company and the Engineer-in-charge(C)/ SO(C) of the Area may authorise interim payment for excess work done, if any, upto 20% in excess of the quantity of individual item of work as per the schedule of quantities of the contract awarded from Company level and Area level respectively subject to overall value of work done does not exceed the contract value.

The above at sl.no. i & ii are regularised by a deviation estimate or revised estimate sanctioned by the competent authority with the concurrence of finance.

#### **6.07 Payment for Extra Work done**

It is not always to foresee all the items of works involved in completion of a work at the stage of design and estimation. During the course of work, extra items of work not covered by the Agreement, may required to be carried out for completion of the work. The contractor can not be asked to wait for the payment till the sanction of competent authority is received for the deviation estimate or revised estimate.

In all such cases the CGM(C)/ GM(C) & the Engineer-Incharge SO(C) of the Area may authorise interim payment for extra items of work for a contract awarded from Company level and Area level respectively provided no items of such extra work added altogether is more than 10% of the agreement value and total work done including excess quantities does not exceed the work order/ agreement value. This is regularised by a sanction of competent authority with concurrence of finance by a deviation estimate or a revised estimate.

Balance amount on account of excess quantity and extra items of work executed shall be paid after deviation estimates/ revised estimate regularising the extra items and excess quantity of works is sanctioned by the competent authority with FC.

## **6.08 Payment of Substandard Works**

The contractor is required to execute all works according to the specifications laid down in the contract to the satisfaction of Engineer Incharge. If certain items of work are below specifications, the contractor shall be asked to re-do them according to the specifications and if the contractor does not rectify the defects, the work should be got re-done departmentally at the risk and cost of contractor in terms of the relevant clauses of contract. Engineer Incharge may accept such work of below specifications provided he is satisfied with the quality of such works and the strength and structural safety of such works and with the approval of SO(C)/ GM(C)/ CGM(C).

In that case Engineer-in-charge shall make such deductions for the difference in value, as in his opinion may be reasonable and to be approved by SO(C)/ GM(C)/ CGM(C).

## **6.09 Issue of Completion certificate**

The contractor shall give notice of completion of work, as soon as work is completed to the Engineer-in-charge. The Engineer-in-charge shall within 15 days from the receipt thereof, inspect the work/ inform the SO(C) or GM(C)/CGM(C) for carrying out inspections required as per cl.5.16 and ascertain the defects/ deficiencies, if any, to be rectified by the contractor as also the items, if any, for which payment shall be made at reduced rate.

6.09.1 In the event there are no defects or the defects/ deficiencies are of a minor nature and the Engineer-in-charge and any other officer nominated for the purpose by GM(C)/ CGM(C) are satisfied that the contractor has already made arrangements for rectifications, or in the event of contractor's failure to rectify the defects for any reason whatsoever, the defects can be rectified departmentally or by other means and the 50% of the security deposit of the contractor shall be sufficient to cover the cost thereof, EIC will issue the completion certificate, as per delegation of power, indicating the date of completion of the work, defects to be rectified, if any, and the items, if any, for which payment shall be made at reduced rate indicating reasons thereof.

6.09.2 If the defect, according to the Engineer-in-charge and any other officer nominated by CGM(C)/ GM(C) for the purpose, are of a major nature and the rectification of which is necessary for the satisfactory performance of the contract, he shall intimate in writing the defects and instruct the contractor to rectify the defects/ remove deficiencies within the period and in the manner to be specified therein. In such cases, completion certificate will be issued by the Engineer-in-charge, as per delegation of power, after the above rectifications are carried out/ deficiencies are removed by the contractor to the satisfaction of the EIC and any other officer nominated by CGM(C)/ GM(C) for the purpose.

## **6.10 Settlement of Disputes with the Contractor**

**6.10.1** Engineer Incharge of the work will make every effort to avoid litigation and disputes with the contractor during the course of execution. However, if such disputes take place between the contractor and the department, it should be mutually settled by a committee comprising of Staff Officer(C)/ Dy.GM(C), Area Finance Manager and a representative

nominated by CGM/ GM(C)of the Area /Project. The contractor should make request in writing to the Engineer Incharge for settlement of such disputes/ claims within 30 days of arising of the cause of the dispute/ claim and if in the opinion of EIC the dispute can not be settled at his level, he will refer the matter to the above committee for settlement within 30 days of receiving intimation from the contractor.

**6.10.2** In case the disputes still persist and the committee referred above and the contractor are unable to arrive at a settlement, the matter shall be referred to the Head of 'Civil Engineering Department'/ Project/Director of the company whoever is the accepting authority for the contract within 30 days from the failure to arrive at a settlement by the committee as mentioned above or within 60 days from the determination of the contract. The Head of "Civil Engineering Department"/Project/Director of the Company shall take all effective steps to settle the disputes so raised by negotiation between the parties and if necessary through a committee of the official as may be considered fit or proper, within 90 days from the date of reference of the dispute.

### **6.10.3 Arbitration**

i) In the event of failure in arriving at any settlement within a period of 90 days as referred to in the preceding paragraph such dispute of difference may be referred to the Sole Arbitrator to be nominated by the Chairman-cum-Managing Director of the company. Request for such arbitration by the Sole Arbitrator has to be made in writing by the concerned party to the Chairman-cum-Managing Director of the company within 90 days from the date of failure of settlement of the dispute. The Sole Arbitrator can be an employee of the company or otherwise connected with the company. There shall be no objection to any such appointment.

In the event of the arbitrator neglecting or refusing to act or resigning or being unable to act for any reason whatsoever the Chairman-cum-Managing Director of the company shall substitute such Arbitrator by a fresh nomination. No person other than the nominated or appointed as aforesaid shall act as an Arbitrator. Should any request for arbitration is not made in writing within the time stipulated herein above it shall be deemed to have been waived such right for arbitration and absolutely barred to refer the matter to the arbitration at all.

Work under the contract shall be continued by the contractor during the Arbitration proceeding unless otherwise directed in writing by the company. Payment due or payable by the company shall not be withheld on account of such arbitration proceedings.

Subject to as aforesaid the Arbitration and Conciliation Act, 1966 or any statutory modification thereof and rules made there under and for the time being in force shall apply to the arbitration proceeding under this clause. Venue of the arbitration shall be at the Headquarters of the Company or the place where the cause of action has arisen on the sole discretion of the arbitrator.

ii) The above arbitration clause shall not be applicable in the case of dispute between Public Sector Undertaking inter se or between one Public Sector Undertaking and the Government Department and the provisions contained in the following paragraph shall be applicable for such dispute.

In the event of any dispute or difference relating to the interpretation and application of the provisions of the contract, such dispute or difference shall be referred by either party to the arbitration of one of the Arbitrators in the Department of Public Enterprises to be nominated by the Secretary to the Government of India, Incharge of the Bureau of Public Enterprises. The Arbitration and Conciliation act 1996 shall not be applicable to the arbitration under this clause. The award of the Arbitrator shall be binding upon the parties to the dispute, provided, however, any party aggrieved by such award may make a further reference for setting aside or revision of the award to the Law Secretary, Department of Legal Affairs, Ministry of Law & Justice, Government of India. Upon such reference the dispute shall be decided by the Law Secretary or the Special Secretary/ Additional Secretary when so authorised by the Law Secretary, whose decision shall bind the parties finally and conclusively. The parties in the dispute will share equally the cost of arbitration as intimated by the Arbitrator.

## **7. DUTIES & RESPONSIBILITIES**

7.00 The Civil Engineering Deptt. as stated in the beginning, is entrusted with the responsibility of providing leadership for various Welfare and Mine development activities including Service Buildings, Haul Roads, Coal handling Plants etc. In addition, the department is incharge of the maintenance of the assets of the company already existing as Roads, Buildings, Plants, etc. The company has ambitious welfare plans in the form of housing, water supply, community developments etc. and these are executed and maintained by the Civil Engineering Deptt. of the companies. The Civil Engineers at various tiers of the department should therefore know his duties well and discharge them diligently. In discharge of his duties the Engineers at every level shall keep in mind the following guidelines in general.

(i) He should take pride in his profession and quality of the work executed and his goal should be to achieve excellence.

(ii) He should be fully conscious of the responsibilities of his action being a public servant.

(iii) He should know the rules & regulations, specifications thoroughly including the reason for each requirement to enable him to use his judgment.

(iv) In addition to safe guards required as per rules and regulations, he has a moral obligation to provide for the safety, health and comfort of the public affected by his operations.

(v) He is a leader and he should steer the course of the work through exercising effective managerial and technical control. He should be flexible in his approach and keep the overall interest of the work in mind.

(vi) He must communicate effectively upwards, downwards and horizontally maintain his judgment and cool even under trying circumstances.

The duties and responsibilities from Chief of Civil Engineering at CIL downwards is given below :

### **7.01 DUTIES & RESPONSIBILITIES OF CHIEF OF CIVIL ENGINEERING/ED(CIVIL) / CGM(C) POSTED AT CIL(HQRs)**

7.01.1 The Chief of Civil Engineering posted at CIL(HQRs) is the Head of Civil Engineering Discipline for Coal India and its Subsidiary Companies.

7.01.2 He shall be responsible and answerable to the Chairman and Directors, CIL for proper and efficient working of Civil Engineering Department.

7.01.3 He is functionally incharge of all construction work of the company.

7.01.4 He will ensure adoption of uniform rules and guidelines so that streamline of methods and practices is achieved for optimum utilisation of resources.

7.01.5 He will be reviewing authority of capital and revenue budgets of Coal India, to ensure priority and economy in Project Implementation and maintenance of assets.

7.01.6 He will have a cell for collection of Civil Engineering Books, journals & Publications on Civil Engineering, Schedule of Rates/ Standard Specifications and terms & Conditions of Civil Engineering Works, Codes & Manuals etc. relevant to Civil Engineering and utilise them for the purpose of reference in matters relating to standardizations, quality control and communicate technological development in Civil engineering Works to all concerned.

7.01.7 Updating of departmental SOR in due time and correct manner for all types of Civil Engineering Works will be monitored by him for the purpose of overall control.

7.01.8 He will ensure organisational development by appropriate manpower projections and by advising/ assisting the management in matters relating to recruitment, promotions, placements, organising training needs, streamlining the Civil Engineering personnel etc. for efficient functioning of the department.

7.01.9 He will inspect and oversee the functioning of Civil Engineering Works in the Subsidiaries each quarter and shall hold review meetings with the concerned officials of the Subsidiary at regular intervals.

7.01.10 He will coordinate all Civil Engineering matters requiring liaison with CTE/ CVC, Rlys, DPE, Ministry and other Statutory Bodies.

7.01.11 He will provide expert advice and consultation to Subsidiaries in all matters related to Civil Engineering.

**7.02 DUTIES AND RESPONSIBILITIES OF CGM(CIVIL)/ GM(CIVIL)/ CE(C) / OF THE SUBSIDIARY AS HEAD OF DEPTT.**

7.02.1 The Chief Engineer is the head of the department of Civil Engineering and is responsible and answerable to Chief Executive of the company for the proper and efficient working of his department. he is also the Adviser to the company in all matters relating to his branch and he is to look after the efficient and economical working of his Department. It is his duty to see that adequate and detailed rules exist or are prescribed for the efficient construction and maintenance and renewal of all structures, works & equipments etc. that are utilised for the company purpose.

7.02.2 He is functionally incharge of all construction work of the company.

7.02.3 The Capital & Revenue Budget proposals in respect of all Civil Engineering works prepared by various Projects/ Areas should be reviewed by Chief Engineer(Civil) keeping in view the necessity, economy and project report provisions. The Chief Engineer(Civil) sees that the budget allotments are utilised consistent with actual requirements and general economy.



7.02.4 It will be the duty of the Chief Engineer(civil) to maintain in his office, the Schedule of rates and a book of standard specifications, terms & conditions and to satisfy himself that the rates allowed for the work are competitive. Other standard books like C.P.W.D., N.B.O., B.P.E., State PWD/ PHED, Schedules, Codes, Manuals etc. should be maintained in his office.

The Chief Engineer(Civil) is empowered to take corrective measures for any faults in systems & practices whether in execution of works or in the preparation of accounts by the officers of the Engineering Deptt. which may come to his knowledge. General Manager of the Area/ Project and other concerned officers should be informed of these measures. It will be the responsibility of the Chief Engineer(Civil) to prepare and update departmental SOR for all types of Civil Engg. works with the concurrence of finance.

7.02.5 (i) The Chief Engineer(Civil) will recommend to the Chief Executive of the Company the appointment, placement and career growth of all officers of his department.

(ii) The Chief Engineer(Civil) will recommend to the Chief Executive of the company requirements of technical personnel and training needs in Civil Engineering deptt.

(iii) The Chief Engineer maintains liason with CIL, B.P.E. Ministry of Coal regarding construction programme of Civil works for Projects/ Areas including works relating to residential buildings & other welfare measures.

7.02.6 The Chief Engineer(Civil) will inspect his office & Staff Officer(c)'s/ Project Officer(C)'s office under his charge atleast once in every year.

7.02.7 The Chief Engineer(Civil) is responsible for all master plan, selection of site for major construction and important structural designs. The responsibility for the technical features of all designs rests with the office of their origin.

7.02.8 He should guide R&D activities, Standardisation and Quality Control in Civil Engineering matters.

### **7.03 DUTIES & RESPONSIBILITIES OF CE(C) / GM(C) AND DY.CE(CIVIL) / DY.GM (CIVIL) IN-CHARGE OF DIVISION**

7.03.1 At headquarters while assisting C.E.(Civil)/ Head of department (depending upon jobs in different cells):

- a) Assist C.E.(Civil) in efficient and proper handling of works.
- b) Floating of tenders and allied works.
- c) Preparation/ Updating of Schedule of Rates.
- d) Overall control of estimating and design/ drawing Section.
- e) Overall co-ordination over problem of Civil Engg.works at Headquarters level and follow up action.

- f) Follow up action on accepted tenders relating to civil construction works within the purview of CE(C), scrutiny and preparation of contract agreement for execution by the CE(C) and the Contractors.
- g) Scrutiny of revised estimates, claims and arbitration matters relating to civil engineering works.
- h) Disposal of Inspection / Audit reports concerning various works executed.
- i) Preparation and submission of monthly progress reports.
- j) Scrutiny of construction programmes, budgets and material budgets.
- k) Co-ordination and follow up action of the various works in Areas/ Projects.
- i) To deal with official correspondence, issue of sanction etc. of CE(C)'s office.
- m) To do and perform any other duties as may be assigned by CE(C) from time to time .
- n) He will exercise all powers of CE(C)/ Dy.CE(C) or part thereof if so delegated by CE(C)/GM(C).

7.03.2 While Posted in Field as project officer for execution of major construction works .

He will perform all the functions as a Project Officer and will have all power of Project officer.

7.03.3 While posted in an Area as Staff Officer to GM/ CGM, he will have all function as Staff Officer and exercise the powers as may be delegated to him.

#### **7.04 DUTIES AND RESPONSIBILITIES OF DY.CE(CIVIL)/ DY.GM(CIVIL) & SUPDT. ENGINEER(C) / SR.MANAGER(C) AS STAFF OFFICER(CIVIL)**

7.04.1 It will be the duty of the Staff Officer(Civil) to inspect the various works within his Area and to satisfy himself that the system of management prevailing is efficient and economical and the quality of work is according to the specification in the contract.

7.04.2 He is required to ascertain and report to CGM/ GM of the Area/ Projects and CE(C) on the efficiency of the subordinate offices and establishment and to see that staff employed under each Sr.EE(C)/ EE(C) is actually necessary and adequate for its management. He should examine the register of works so as to keep a vigilant watch over the rate of progress of work and he may require the Sr.Executive Engineer(C) / Executive Engineer(C) to report to him monthly on a work within the sanctioned estimates and ensure that the revised estimate for any work, if required, is submitted in due time to the sanctioning authority.

7.04.3 He should also see that the standard/ approved system of Accounts is maintained throughout his jurisdiction, and see that there is competent administrative approval and sanction of the estimates.

7.04.4 The Staff Officer(Civil) may recommend to the Chief Engineer(Civil) transfer of executives and other technical staffs from his Area through the General Manager.

7.04.5 He will be responsible for preparing programmes and budgets on all Civil Engineering activities in the area in time and monitor the budget.

7.04.6 He will invite tender for civil engineering works for and on behalf of General Manager and award of work as per delegation of powers, subject to budget provision and observing all other formalities.

**7.05 DUTIES AND RESPONSIBILITIES OF SR. EXECUTIVE ENGINEER(C)/ EXECUTIVE ENGINEER(C)/ MANAGER (CIVIL)/ DY.MANAGER (CIVIL)**

7.05.1 The Sr.Executive Engineer(C)/ Executive Engineer(C)/Designated Officer in-charge of the work under his control is responsible to the Dy.CE(C)/ Supdtg.Engineer(C)/ Staff Officer(C) for execution and management of all works under his jurisdiction in close co-ordination with the concerned Project Officer/ Agent. He should be responsible for the standard quality of work as per specification in the contract agreement.

7.05.2 The Sr.Executive Engineer/ Executive Engineer(Civil) is required to report immediately to the Project Officer/ Agent and Dy.CE(C)/ SE(C)/ Staff Officer(C) on any serious accident or unusual occurrence under his jurisdiction and to state how he has acted.

7.05.3 The Sr.Executive Engineer(C)/ Executive Engineer(Civil) should not normally permit deviations from any sanctioned design in the course of execution, except under specific authority, or in the case of emergency when the changes should be forthwith reported to the Dy.CE(Civil)/ Supdt.Engineer(C)/ Staff Officer(C) for competent approval.

7.05.4 Immediately on a work being finished, it will be the duty of the Sr.E.E(C)/ EE(C) to close the accounts in works register/ contractors ledger.

7.05.5 He should process the estimates received from the E(C)/ E/A(C)/ Overseer(C) and sent to Staff Officer (C) after due check for competent sanction.

7.05.6 The Sr.E.E(C)/EE(C) after completion of works should process revised estimates for sanction. He should also see that the final bills are processed and sent to Accounts Deptt. within reasonable time, after completion of work. He is responsible for proper recoveries for the materials issued on sale-account, house rent, electricity, water & hire charges etc. as per the terms of contract.

7.05.7 He is also responsible for proper maintenance of ledgers and accounts for the different work in his jurisdiction.

7.05.8 He is primarily responsible for furnishing information in case of probability of excess over estimated cost of work, and should report any such probability to the Dy.CE(C)/ Supdt..Engineer(C)/ Staff Officer at once, describing the nature and course of the excess and asking for orders.

7.05.9 He shall carry out checking of measurement as per norms laid down hereinbefore.

7.05.10 He will inspect and approve queries for stone materials, sand and other minor minerals required for civil construction works and determine the lead involved therein.

7.05.11 He will inspect/approve foundation for major residential/ office buildings, minor structures, bridges upto 15m span before allowing laying of foundations. Regarding approval of foundations for major industrial structures like permanent CHPs, Coal Washeries, etc. and bridges above 15m span, he will inspect at first and then obtain approval of the same from Dy. CE(C)/ SE(C)/SO(C) before allowing concreting . In special cases approval of CE(C)/ Dy.CE(C) (as H.O.D.) may be obtained if necessary.

7.05.12 He will be responsible for furnishing reply to audit paras and other inspection reports concerning Civil Engineering Works. He will maintain a register showing the status of Audit objection raised and settled in due course of time.

7.05.13 He will conduct/arrange investigation and laboratory tests.

7.05.14 He will be responsible for furnishing reply to vigilance queries concerning to his works.

7.05.15 He will be responsible for maintaining records of completion drawings and standard measurements for original work and completion reports for all works under his jurisdiction.

7.05.16 He will maintain a personal diary/ note book to record important points regarding works under his control and also note instructions from his superiors for compliance.

#### **7.06 DUTIES & RESPONSIBILITIES OF ENGINEER(C)/ASSTT. MANAGER(C)**

7.06.1 The Engineer(Civil) shall be responsible to The Executive Engineer(C)/ Sr.Executive Engineer(Civil) for the management and execution of works within his control. He will however maintain close liason with Project Officer/ Agent whenever necessary.

7.06.2 In case, the Engineer(C) is dealing works of a single Project/Colliery which is not under the exclusive control of the EE(C)/ Sr.EE(C), he will be under the administrative control of Project Officer/ Agent. He will, however, obtain technical guidance from EE(C)/ Sr.EE(C) looking after the works in one or more Colliery/ Projects. He shall be completely responsible for the quality of works according to the specifications as laid down in the contract agreement and approved drawings.

7.06.3 The Engineer(C) with defined area of works will be directly in charge of the construction work and has to look after the work in day-to day execution. He will be responsible for the maintenance and management of all works within his jurisdiction.

7.06.4 He will do the scrutiny of the estimates prepared by the Engg. Asstt/ Overseers under his charge for the maintenance works on due dates and also for new works. He will submit the complete design/ estimates of the above, as may be necessary.

7.06.5 It is obligatory on the part of Engineer(C) to ensure that the duties laid down for the Engg.Asstt/ Sr.Overseer(C)/Overseer(C) fulfilled properly and in case of lapses, he has to set them right and report to the Sr.EE(C)/EE(C) in case he fails to set them right with his own efforts. He has to submit necessary returns, accounts and progress reports etc to the Sr.Ex.Engineer(C)/ Executive Engineer(C) in time.

7.06.6 He is responsible for proper recovery for the materials issued on sale account, house rent, electricity and water charges as per the terms of contract. He is also responsible for proper accounts of the materials issued for the departmental works.

7.06.7 He is responsible for the maintenance of all records and registers pertaining to works under his jurisdiction.

7.06.8 He is responsible for processing of revised estimates after completion of works for sanction. He should see that final bills are processed and submitted to the Sr.EE(C)/EE(C) in time.

7.06.9 He should bring to the notice of the Sr.EE(C)/ EE(C) in advance any deviations, extra items, in execution of contract works and obtain proper approval for the same.

7.06.10 He shall carry out checking of measurements as per norms laid hereinbefore.

7.06.11 He will take action for working out the requirement of materials for works under his control and take suitable action for procurement as per procedure.

7.06.12 He should always keep his official note book and record every important point regarding works. He should also record in his note book all important instructions given to him by his superior officers for compliance.

7.06.13 He will prepare completion drawings and standard measurements for original works and completion reports for the works.

7.06.14 The Engineer(C) will inspect and approve foundations of minor buildings and also allow concreting.

#### **7.07 DUTIES AND RESPONSIBILITIES OF ENGINEERING ASSTT(C) / SR. OVERSEER (CIVIL)/ OVERSEER (CIVIL)**

7.07.1 Engineering Asstt./ Sr.Overseer/ Overseer(C) is the technical supervisory staff at the initial level and is directly incharge of the work at the field levels and have to look after the works assigned to them, by their superiors, from time to time.

7.07.2 The Engineering Asstt./ Sr.Overseer(C)/ Overseer(C) is required to maintain records of labour, materials, tools & plants etc. at site of work. He has to record the measurements of work done or supplies made, prepare bills thereof & keep a clear record of all the stores and tools under his custody. The cost of all materials & hire charges of tools/ equipments issued for the work are to be realised from the contractors bill regularly by the Engineering Asstt./ Sr. Overseer/ Overseer(C).

7.07.3 The Engineering Asstt./ Sr.Overseer/ Overseer(C) is directly incharge of construction work and has to supervise the works in their day-to-day execution. His exact duties, however, depend upon the instructions of the Engineer(C) and the work on which he is posted.

7.07.4 The Engineering Asstt./ Sr.Overseer(C)/ Overseer(C) is the person on the spot in immediate charge of the works. He looks after the execution & management of all works within his section. He takes steps for the maintenance of all buildings/ roads etc in his charge.

7.07.5 The Engineering Asstt./ Sr.Overseer(C)/ Overseer(C) prepares estimates for original new works, repairs and maintenance of works on due dates & also for items of special repairs wherever they are necessary and submits them to his Engineer.

7.07.6 He ensures that there is no expenditure on any work unless all formalities required in connection with the work have been fulfilled.

7.07.7 He should ensure that all works in his charge are carried out in a work-man like manner and according to the contract & departmental instructions. When he notices any defects in any contractor's work, he gets them rectified by the contractor at once, & if the later does not carryout his instructions or the progress is slow, he reports the matter promptly to the concerned Engineer(C) for necessary action. He should always carry his official note book & take it with him during inspection and record every important point regarding works inspected by him. He should also record in his note book all important instructions given to him by his superior officers for compliance.

7.07.8 He is responsible to ensure that the provisions of the contracts are strictly enforced and that nothing is done tending to nullify or vitiate them.

7.07.9 He takes and records all the measurement of works done or supplies made in his sections in his measurement book & submit the measurement book & bills to the Engineer(C) for early payment/ further necessary actions, unless there is some instructions forbidding him to do so from the higher authorities.

7.07.10 The Engineer Asstt(C)/Sr. Overseer(C)/Overseer(C)assigned to a work reports immediately to the nearest Police Station as well as to the Engineer and the Executive Engineer on the occurrence of serious accident, if any. He inspects every bridge and culvert during and just after rains and ensures that they are not unsafe and that necessary repairs are proposed and carried out timely. During rains, he is to find out if there is any culvert and bridge in his section without adequate water way. He also inspects all building roofs during the rains and takes steps for necessary repairs in case of leakages and dampness.

7.07.11 The Engineering Asstt./ Sr.Overseer(C)/ Overseer(C) deputed for construction works should see that the job which he is supervising is done according to the specifications and drawing and orders of his superior officers. He keeps watch on materials, labour and P & Ms available and that required in future. He ensures that the required progress is obtained with the source at his disposal. If there is any shortage, he makes efforts to arrange further requirements. The best way to achieve specified progress is to work out and arrange every materials, P & Ms and labour for required quantities well in advance.

7.07.12 The Engineering Asstt./ Sr.Overseer(C)/ Overseer(C) is entirely responsible for all petty stores and site accounts, store, tools & plants in his charge and to see that his stock registers are at all times correct & up-to-date. He sees that articles are kept neatly stocked and that the stocks are made of a uniform dimension to facilitate checking. He ensures that spare bricks, pipes and other building/ road materials in his charge are not left unguarded and unprotected. He does not issue any stores or tools and plants without proper written orders from the Engineer and without obtaining receipts for them from the contractor. He ensures that adequate security arrangements exist as required in every stores.

If on account of any unavoidable circumstances, he finds that there may be some loss to the stores in his possession, he immediately reports the matter to his superior officer. In particular he examines the floors and roofs etc. of the godowns to ensure that there is no dampness or leakage which might involve damage to the stores e.g. setting of cement etc.

7.07.13 It is the duty of the Engg.Asstt/ Sr.Overseer/ Overseer(C) to carryout physical verification of stores in his charge & to take proper actions immediately in case of shortages of stores due to theft/ damages and on surplus of stores.

7.07.14 He sees that leveling instruments and theodolities, when not in use are cleaned and kept in their boxes. Other survey instruments are also properly stored so that they do not get damaged. Any damage to an instrument or any defects noticed in the adjustment are reported immediately to the Engineer. The Engineering Assistant/ Sr.Overseer/ Overseer(C) is responsible for keeping the instruments in his charge in working order.

7.07.15 He will maintain site order books for each and every work of capital and revenue nature.

7.07.16 He submits periodical progress reports of all works under him to the concerned Engineer(C).

7.07.17 He will prepare deviation estimates for the anticipated deviations from the original agreement well in time and also prepare revised estimate for the works under him.

## **7.08 DUTIES AND RESPONSIBILITIES OF ESTIMATING OFFICER(C)/ ESTIMATOR(C)**

7.08.1 He will prepare/ update schedule of rates including analysis of rates.

7.08.2 He is responsible for the following in respect of the office, he is attached to :

- a) Preparation and revision of standard estimates, checking of estimates/ revised estimates received from projects/ areas/ units/ HQ unit and processing the same for sanction
- b) Action for call of tenders, preparation and sale of tender documents
- c) Scrutiny of tenders received and preparation of comparative statement and placing the same before Tender Committee, preparation of work order etc.
- d) Preparation of bill of quantities for the agreements, preparation/ scrutiny of draft agreements.

e) Responsible for proper accountal & recording of various documents such as tender documents, drawings and other papers. He will maintain the following registers as far as practicable:-

- i) Register of standard estimates/revision thereof.
- ii) Register of other estimates/revision thereof.
- iii) Register of tender documents prepared & sold.
- iv) Register for tender opening.
- v) Register for issue of SORs.
- vi) Register of accounts for "Application form for registration of contractors".
- vii) Register of applications received regarding registration of contractors.
- viii) Register of approved suppliers/manufacturers.
- ix) Register regarding performance of contractors.
- x) Register of contractors registered under different contracts.

7.08.3 He should assist in arbitration and other cases pertaining to the department.

7.08.4 He should scrutinise claims, rate analysis etc.

7.08.5 He is responsible for collection and compilation of different statistics of buildings, roads etc.

#### **7.09 DUTIEIS & RESPONSIBILITIEIS OF ACCOUNTS OFFIER/ACCOUNTANT.**

7.09.1 The Accounts Officer/Accountant shall function as an effective liason between his office and the concerned Area Account Office. He shall be responsible for the financial regularity and maintenance of accounts for transactions of the Deptt. in accordance with the rules.

7.09.2 The functions of the A.O/Accountant are three fold: (i) As Accountant, (ii) As Internal Auditor and (iii) As Financial Assistant. In discharging his duties, he is expected to keep himself fully conversant with the sanction and orders passing through the Office and with other proceedings of the Office and its subordinate offices which may affect the estimates &/or accounts of the civil works undertaken by the department.

The Engineer-in-charge should see that he is given the fullest opportunity of becoming conversant with these sanction orders proceeding to enable him to discharge his duty efficiently.



7.09.3 If any transaction or order affecting receipts or expenditure is such as would be challenged in Audit, the Accountant will bring this fact to the notice of the Engineer-in-charge with a statement of his reasons and obtain the orders of that officer. It will then be his duty to comply with his orders.

7.09.4 The A.O./ Accountant should bring to the notice of the Engineer-in-Charge all instances, where the expenditure exceeds the financial limitation. If any serious financial irregularity is noticed by the Account it should be reported at once for the information of the E.I.C./ Area Accounts Officer/ concerned Accounts Officer.

7.09.5 The A.O./ Accountant has right to seek advice of the Area Accounts Officer/ Chief Accounts Officer in all matters connected with the accounts of his department or the application of financial rules and orders concerning which there may be any doubt.

7.09.6 The A.O./ Accountant is responsible for detailed account checking of the individual tenders and for seeing that computation of the individual tenders has been done correctly. He should satisfy himself that the comparative statement correctly incorporates details of the tenders..

7.09.7 The A.O./ Accountant will scrutinise and check the bills for Civil Engineering works prepared by the Engineering Asstt/ Sr.Overseer/ Overseer based upon the detail measurement books & see that the bill is complete in all respect and in accordance with the contract/ work order.

7.09.8 The A.O/ Accountant will function as the representative of Area Accounts Officer concerned and his checking of the bill will form the pre-audit on behalf of the Area Accounts Officer, so far the running on account bills for Civil works are concerned. In respect of all the final bills for Civil works, the Area Accounts Officer, will, however, exercise necessary pre-audit in addition to the checks/ scrutiny exercised by the Accountant.

7.09.9 Details of checking to be exercised by the Accountant in respect of bills relating to Civil Engineering works are given below:-

- i) The Work Order/ Contract Agreement has been signed by both parties.
- ii) Where the work has started before issue of the work order, it is supported by an "URGENCY CERTIFICATE" from the competent authority.
- iii) The date of measurement has been recorded in the Measurement Book.
- iv) The period of claim has been recorded in the M.B.
- v) Check the accuracy of all arithmetical calculations of the contents recorded in the measurement book.
- vi) The rates adopted for various items of work are in accordance with the work order/ contract agreement.

vii) While checking the first on account bill, ensure that payment towards initial security deposit has been made by the contractor, the particulars thereof should be suitably recorded in the bill.

viii) The quantities of various works/items are within the provision of Agreement/Work Order or are covered by proper supplementary work order issued in writing by the competent authority.

ix) Agreement No. and date/Work Order No. and date of commencement of work & date of completion of work as per agreement, period of claim, extension of completion time by the competent authority, if any, have been correctly indicated in the bill.

x) Ensure that the bill has been signed by the contractor or the authorised representative of the contractor.

xi) Ensure that the persons signing the bill has been authorised by the contractor either by the Power of Attorney or by virtue of Partnership Deed and that such information has been conveyed to the Area Accounts Officer and Sr. EE(C)/EE(C)'s Office in advance.

xii) Ensure that the bill has been signed by the EA(C)/Sr.Overseer(C)/Overseer(C) as the case may be and also signed and endorsed by Engineer(C)/EE(C)/Sr.EE(C)/SE(C) with appropriate check measurements. It is to be ensured that the bill has been signed by the Engineer in Charge as a token of acceptance(Cl.6,01.3).

xiii) Ensure that a statement of materials issued and to be recovered is attached to the bill and ensure that all materials issued to the contractors upto the date for which the bill has been prepared have been incorporated therein. However, where the recovery for supply of materials has been spread over more than one running "on account" bill by order of competent authority, ensure that it is in accordance with standing instruction.

xiv) The rates of recovery for such materials have to be scrutinised with reference to the agreement. Where a fixed rate has been provided in the agreement the recovery should be made accordingly. Where the rate has not been indicated the valuation will be done on basis the latest price to be obtained from the Area Accounts Office to which 20% should be added to arrive at the provisional rate of deduction for the materials.

However the final recovery should be made on store issue rates as confirmed through sale bill by the Area Accounts Officer/Area Store Officer.

xv) Ensure that other recoveries such as secured advance other advances, supply of coal, hire charges for plant & equipment, water and electricity charges, rent etc. have been made properly.

xvi) In case of final bills the following additional aspects have to be checked:-

a) Certificate of No claim against the contractor by the Engineer-in-charge.

- b) Certificate of satisfactory completion of work by EIC and or any other Officer nominated by CE(C) for the purpose.
- c) Certificate of leak-proofness of roof in respect of buildings or other similar structures.
- d) Indemnity Bond by contractor against any claim by State Govt. towards payment of Royalty for minor materials.
- e) Ensure that the revised estimate regularising the variation in quantities and/or extra items executed and the extension of time of completion, as may be necessary, have been sanctioned by the competent authority.
- f) Ensure that a complete list of materials issued to the contractor against the particular work with detail/particulars of recoveries already made from on account bills is enclosed with the final bill.
- g) In case the contractor signs the final bill "under protest" the reasons for such protest have been duly recorded by the contractor on the bill.

7.09.10 He will be responsible for maintenance of bill, register, contractors ledger in respect of civil engineering works separately for each Project.

7.09.11 He is responsible for checking of bills and maintenance of various accounts in respect of civil construction works executed departmentally as per the rules laid down. While exercising the checking/scrutiny of the bills in respect of departmental works, he will further ensure that the same is done in accordance with the detail procedure laid down in preceding paras to the extent applicable.

7.09.12 The Accountant should maintain the following records in respect of all works separately for each project except which will be common for all the projects in the department:

- i) Imprest Cash Book.
- ii) Estimate Register.
- iii) Work Order Register.
- iv) Contract Agreement Register.
- v) Bill Register separately for Capital & Revenue works.
- vi) Contractors Ledger.

### 7.10 Designations of Civil Engineering Personnel.

Wherever any of the following designations are mentioned in the Manual the corresponding ones are shown below will also be applicable.

<b>CGM(Civil)</b>	<b>Chief General Manager(C)</b>	<b>(M-3)</b>
<b>General Manager(C)</b>	<b>Chief Engineer(C)</b>	<b>(M-2)</b>
<b>Dy. General Manager(C)</b>	<b>Dy. Chief Engineer(C)</b>	<b>(M-1)</b>
<b>Sr. Manager(C)</b>	<b>Supdt. Engineer(C)</b>	<b>(E-5)</b>
<b>Manager(C)</b>	<b>Sr. Ex. Engineer(C)</b>	<b>(E-4)</b>
<b>Dy. Manager(C)</b>	<b>Executive Engineer(C)</b>	<b>(E-3)</b>
<b>Asstt. Manager(C)</b>	<b>Engineer(C)</b>	<b>(E-2)</b>

## 8. QUALITY ASSURANCE

8.00 Quality assurance encompasses all the measures that are necessary to achieve the quality of a product. Specifically for Civil Engineering construction it implies that there are standards of construction for all works which must be achieved. Knowledge/consciousness about quality is therefore the first prerequisite of quality assurance. Bureau of Indian Standards(BIS) has extensively covered various aspects of civil engineering constructions which must be followed for quality assurance.

To start with specifications covering materials and workmanships should be clearly drawn and laid down as per BIS Codes/other scientific bodies engaged in standardisation(like NBO, IRC etc). Drawings should support the specifications in the form of notes, sketches etc. as far as practicable. Workmanship should be similarly covered to the possible extent in the form of acceptable limits of tolerance for any work.

8.00.1 Quality assurance has two important aspects:

- i) Preventive aspect.**
- ii) Corrective aspect.**

The preventive aspect should consist of an organised Quality Control programme with clear standards and guidelines so that every one knows exactly what he is responsible for. The corrective aspect is basically based on the complaints and Corrective Quality assurance therefore includes taking immediate action to correct flaws, dealing with whatever other problems they may have caused and putting things back normal. Steps must also be taken to see that the same trouble does not recur.

### 8.00.2 Handling Complaints.

There are four steps in handling complaints:

- i) Restore the required function as quick as possible.
- ii) Investigate the possible cause of complaint to fix responsibility.
- iii) Regain Company's confidence by dispelling bad feelings.
- iv) Adequate action to be taken to prevent recurrence.

8.00.3 During finalising of contract, the responsibility of the contractor to achieve the specified works should be formally recorded in the contract agreement. The Engineers/Supervisory Staff concerned overseeing the work should be conversant with the drawings and specifications in the contract. There should be rolling quality improvement programme in every subsidiary company through training, seminars, quality circles etc

8.00.4 During execution, quality can be assured through sampling of actual work and its comparison with what is specified in the contract. This method of work sampling is confined to mainly monitoring of the followings:

- \* Monitoring of quality of materials used in construction.
- \*\* Monitoring of the workmanship displayed during execution of work in the finished work.

### **8.01 Quality Assurance of Works.**

8.01.1 The quality of the work depends on the materials used and workmanship in the construction. All materials and workmanship shall be as per the specifications described in the contract/work order and shall be subjected from time to time to such tests as the Engineer directs at the place of manufacture, or on the work site or at such other places as may be specified. The contractor shall provide such assistance, instruments, machines, labour and materials as are normally required for testing any work and shall supply samples of materials before use in the works for testing as required by the Engineer.

8.01.2 Proforma for Quality Control inspection to be carried out by the concerned Engineers is given at **Appendix-14**.

8.01.3 Guidelines for Technical Audit to be done by the concerned Engineers are given in **Appendix-15**.

### **8.02 Cost of Samples & Tests.**

All samples shall be supplied by the Contractor at his own cost as per contract agreement/work order. The cost of making any test as per contract agreement shall be borne by the contractor and, in the cases only of a test under load or a test to ascertain whether the design of any finished or partially finished work is appropriate for the purposes which it was intended to fulfill, then the cost of such test shall be borne by the contractor, if the test shows the workmanship or materials are not in accordance with the provisions of the contract but otherwise by the company.

### **8.03 Access to the Works.**

The Engineer-in-Charge and any persons authorised by him shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials, manufactured articles are being obtained for the works and the contractor shall provide every facility for and every assistance in or in obtaining the rights to such access.

### **8.04 Inspection of Works.**

i) No work shall be covered up or put out of view without the approval of the Engineer or the Engineer's representative and the contractor shall provide full opportunity for the Engineer or the Engineer's representative to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is placed thereon. The contractor shall give due notice to the Engineer's representative whenever any such work or foundations is ready or about to be ready for examination and the Engineer's representative shall, without unreasonable delay, unless he considers it unnecessary and advises the contractor accordingly, attend for the purpose of examining and measuring such work or of examining such foundations.

ii) The contractor shall uncover any part or parts of the works or make openings in or through the same as the Engineer may from time to time direct and shall reinstate and make good such part or parts to the satisfaction of the Engineer. If any such part or parts have been

covered up or put out of view after compliance with the requirement of sub-clause above and are found to be executed in accordance with the contract the expenses of uncovering, making openings in or through and making good the same shall be borne by the employer, but in any other case all costs shall be borne by the contractor.

### **8.05 Removal of Improper Work and Materials.**

i) The Engineer in Charge shall during the progress of the works have power to order in writing from time to time.

a) The removal from the site of any materials which in the opinion of the Engineer, are not in accordance with the contract/work order.

b) The substitution with proper and suitable materials.

c) The removal and proper re-execution, notwithstanding any previous test thereof or interim payment thereof of any work which in respect of materials or workmanship is not in accordance with the contract.

d) In case of default on the part of the contractor in carrying out such order, the engineer shall be entitled to employ and pay other agency to carry out the same and all expenses consequent thereon shall be recoverable from the contractor or may be deducted from any amount due or which may become due to the contractor.

### **8.06 Devaluation of Work.**

In lieu of rejecting a work done or materials supplied not in conformity with the contract/work order, the Engineer-in-Charge and any other Officer nominated by CGM(C)/GM(C) for the purpose may allow such work or materials to remain with the approval of GM(C)/CGM(C), provided the Engineer-in-charge is satisfied with the quality of such materials or the strength and structural safety of the work and in that case he shall make such deduction for the difference in value as in his opinion may be reasonable with the approval of GM(C)/CGM(C).

### **8.07 Final Inspection.**

8.07.1 The Engineer-in-Charge shall make final inspection of all work included in the contract/work order or any portion thereof or any completed structure forming part of a Project as soon as practicable after notification by the contractor that the work is completed and ready for acceptance. If the work is not acceptable to the Engineer in Charge at the time of such inspection, he shall inform the contractor in writing as to the particular defects to be rectified before final acceptance can be made.

8.07.2 Final inspection of works shall also be done by SO(C)/Dy.GM(C)/any other officer nominated by SO(C)/GM(C) or Dy.GM(C)/any other officer nominated by CGM(C)/GM(C) as per norms laid down hereinbefore. A certificate to this effect shall be recorded by the Officer carrying out the inspection as per Cl. 5.16.

### **8.08 Defects appearing after acceptance.**

Any defects which may appear within the defect liability period and arising in the opinion of the Engineer in Charge from lack of conformance with the drgs. and specifications, shall, if so required by the Engineer in Charge in writing be rectified by the contractor at his own cost within the time stipulated by the Engineer in Charge. If the contractor fails to comply, the Engineer in Charge may employ other agencies to rectify the defects and recover the cost thereof from the dues of the contractor.

### **8.09 Site Order Book.**

8.09.1 A Site Order Book is a register duly certified by the EIC regarding number of pages it contains, each page being numbered. Name of work, name of contractor, reference of contract/work order etc. and the aforesaid certificate should be recorded on its first page.

8.09.2 Site Order Books shall be maintained on the sites of works and should never be removed therefrom under any circumstances. It shall be property of the company. The Engineer-in-Charge or his authorised representative shall duly record his observations regarding any work which needs action on the part of the contractor like improvement in the quality of work failure to adhere to the scheduled programme etc. as per contract agreement/work order. The contractor shall promptly sign the Site Order Book and note the orders given therein by the Engineer-in-Charge or his representative and comply with them. The compliance shall be reported by the contractor to the Engineer in Charge or his authorised representative in time so that it can be checked and recorded.

8.09.3 The Site Order Books should invariable be consulted at the time of preparation of running account bills and final bill of the contractor.

8.09.4 Site Order Books are important documents and in case of loss, their write-off may be got sanctioned from SO(C)/GM(C)/CGM(C) as in the case of loss of Measurement Books.

### **8.10 Samples and Testing of Materials.**

All the materials to be used on work such as cement, bricks, aggregates, sand etc. shall be approved by the Engineer-in-Charge in advance and shall pass the tests and analysis required by him, which will be as specified in the specifications of the items concerned and or as specified by BIS or the IRC standard specifications acceptable to the Engineer-in-Charge. The method of tests are not dealt here.

The testing of construction materials and workmanship of Quality are not dealt here. The relevant IS codes/other relevant codes or provisions in the contract agreement should be consulted during execution of work.

8.11 Quality Control aspect has not been dealt in exhaustive manner in this Manual and the same is being dealt in a separate "**Guidelines on Quality Control in Civil Engineering Works**". During execution of work provisions in the contract agreement and relevant BIS codes shall be referred to as per instructions of the Engineer-in-charge.



## **9. REGISTRATION OF CONTRACTORS.**

9.00 Every subsidiary has to depend on outside agencies for execution of various civil works whose nature and volume is very divergent in nature. It is therefore necessary that a list of Contractors is maintained for assigning the works which arise with time. This pool of Contractors shall be a large and competent group with capabilities to deliver the goods as needed. The process of enlistment of Contractors is explained below.

### **9.01 Application for Registration.**

- i) Contract Management Manual of CIL has suggested registration of contractors for different categories for taking up works above Rs. 50 lakhs. The norms suggested have been extended with some modifications for registration of contractors for taking up works of different values.
- ii) The form of notice inviting application for registration of contractors alongwith the specimen application form are given separately in Appendix-16 and Appendix-17 respectively.
- iii) The applications received for each type of work and category are entered in the Register of application for Registration of Contractors.
- iv) The screening of applications received shall be carried out by the Technical Cell attached to the Office of CGM(C)/GM(C).
- v) Registration of Contractors will be a regular process. The registration shall be made initially for a period of two years.
- vi) Registration of Co-operative Societies should be encouraged for labour oriented works valued upto Rs. 2 lakhs and registration fees for Co-operative Societies shall be half of the normal registration fees.
- vii) Unemployed Engineers(Degree or Diploma holder in Civil Engineering) may be registered directly in Category-HI ( for work valued upto Rs. 2 lakhs) and registration fees for such unemployed Engineers shall be half of the normal registration fees.

### **9.02 Screening of Applications.**

Screening of applications for registration should be done on the guidelines suggested as under:

- i) All the applications received are entered in the register kept for the purpose and are scrutinised by the Technical Cell attached to the Office of CGM(C)/GM(C). Technical Cell shall submit the scrutinised applications alongwith their recommendations to CGM(C)/GM(C) for approval.

ii) To ensure that all the particulars required are furnished by the applicants, particularly:

a) attested copies of work orders and satisfactory completion certificates of the work done as per particulars required under past experience and work in hand are furnished indicating respective value of each work.

b) documentary evidence in support of registration under register of firms, contract labour laws as applicable and registration with other Government, Semi-government organisations are furnished.

c) details of equipment and machinery available with the applicant as owner or in any other capacity ensuring full control over such equipment/machinery.

iii) To ensure from the details furnished about past experience, the applicant satisfies the minimum eligibility criteria for registration as specified in the Notice inviting applications.

iv) Applications which do not satisfy the minimum eligibility criteria for the category applied for, may be considered for registration under any other lower category provided such registration is required for the type of work applied for.

v) To ensure that the applicant's past experience and technical resources relate to the type of work and category for which registration is applied for are adequate or whether the application may be considered for registration in the lower category.

vi) To verify whether the volume of transactions as can be determined from the details of past experience i.e value of work executed during the past 5(five) years is comparable with the turnover as per attested copy of audited accounts furnished as also with the volume of transactions recorded through the applicants Bank Accounts as certified by the Banker of the Applicant.

Cases of major variations should be listed(minor variations upto ten per cent may be ignored) which should be subjected to further scrutiny, if necessary, by making reference to the concerned employer or the applicant to clarify the variations.

vii) To identify the applicants who are presently working with the company or who had worked during any of the preceding three years, from the list of applicants, and recommended for registration.

a) If the minimum eligibility criteria is satisfied which relates to a similar type of work of the company or of any of the other subsidiaries or Coal India Ltd or any other government or semi-government organisation for which registration is applied.

b) If the minimum eligibility criteria is satisfied which does not relate to a similar type of work of the company or any of the other subsidiaries or Coal India Ltd. or any other government or semi-government organisation for which registration is applied for, after ensuring the adequacy of experience and technical resources as per item(v) above provided that there is no adverse report against the applicant debarring him from undertaking any work of Coal India Ltd. or any of its subsidiaries.

### **9.02.1 Renewal, Addition & Deletion of Registration.**

i) Applications for Registration from interested contractors/firms will be received all through the year and processed for registration after necessary screening as per the norms laid down hereinbefore. Such applications may be received by the department after the initial registrations are done and Registration of such contractors/firms are done initially for a period of two years.

ii) The performance of all the contractors in respect of each work shall be submitted by EE(C)/Sr.EE(C)/In-charge of the work on completion of the financial year in the prescribed proforma given at **Appendix-18** to SO(C)/Dy.GM(C) and the same shall be reviewed by SO(C)/Dy.GM(C) before being put up to GM(C)/CGM(C). Those contractors whose performance will found to be unsatisfactory twice in two years of Registration, his/their name shall stand deleted from the list of Registered Contractors and inclusion of his/their name may be considered by GM(C)/CGM(C) after he gets satisfied and assured about good performance in future.

iii) Renewal of Registrations will be done on expiry of the validity period of Registration of contractors/firms. Such renewal of Registrations will be done after the scrutiny of the performance reports of the registered contractors/firms with the approval of CGM(C)/GM(C).

### **9.03 Award of Registration Numbers.**

A register empanelled contractors is prepared and the registration numbers are awarded to them as per approved list. Letters of registration in the standard format intimating registration number and category/type of works for which the contractor is registered is sent to him.

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**APPENDICES**

**APPENDIX-1**

(Ref Cl.2.01)

**PROFORMA-1**

Proforma of particulars to be furnished by the concerned departments when initiating building projects which are to be executed by Company Hqrs./Area/Project/Unit.

**General 1****Non-Residential Building**

1. Name of Department
2. Name of work
3. Location
4. (a) Whether land is available. If so, what is the area available. Whether the concerned competent authority has certified the suitability of site.  
  
(b) If the land is not available, whether acquisition proceedings have been initiated, & if so, when possession of land is expected.
5. Approximate cost of the project ( whether any limit has been fixed regarding the total cost of the project).
6. Whether any budget provision has been made in the current year, if so, what is the amount provided.
7. Schedule of requirements :-
  - a) No. of officers grade wise.
  - b) No. of ministerial and other staff in each room.
  - c) No. of caretakers' and electricians' quarters reqd.
  - d) No. of subordinate technical staff in each room.
  - e) No. of Garages required
    - (i) Open garages
    - (ii) Closed garages
  - f) No. of cycle stands required.
8. Special requirements with approximate floor area :
  - (a) Common Room
  - (b) Conference Room
  - (c) Visitors' Room
  - (d) Canteen
  - (e) Recreation Room
  - (f) Inspecting Officers' Rest Room
  - (g) Post Office of Sub-Post Office
  - (h) Storage space for records, stationery etc.
  - (i) Laboratory, workshop, telephone exchange, library, lecture hall etc., as may be specially required.

## 9. Services with necessary details:

- (a) Whether gas supply is required ?
- (b) Whether water supply is required at places other than toilet ?
- (c) Whether any power supply is required ?
- (d) Whether air-conditioning is immediately required or at a later date ?
- (e) Whether telephone conduits are required to be laid ?
- (f) Whether acoustic treatment is required and if so, why?
- (g) Whether any arrangements for installation of computer are required ?
- (h) Any other special requirements, such as ducts, ceiling, special type of flooring, special type of light fittings, etc.
- (i) Whether any lifts are required:-
  - i) Passengers
  - ii) Goods(Capacity).

## 10. Number of storeys desired.

11. Whether any provision is to be made for future expansion, vertical or horizontal. If so, rough details to be given.

## 12. Any other particulars.

**Note:** (1) Generally lifts are provided for buildings of four stories and above. If lifts are required for double or three storeyed buildings, reasons for the provisions of the same may be given.

(2) In case of laboratories, telephone exchanges, workshops, etc.

(3) Attach separate sheets if the space provided in the proforma is not sufficient.

(4) In a technical building, relative position of the rooms may be indicated by means of a rough sketch.

**PROFORMA 1-B**

Proforma of particulars to be furnished by the concerned departments when initiating building projects which are to executed by Company Hqrs./ Area/ Project / Unit.

**Hostels.**

1. Name of Department.
2. Name of the works.
3. Location
4. Whether land available, if so, what is the area, if not whether land acquisition proceedings have been initiated.
5. Approximate cost of the project (whether any limit has been fixed regarding the cost of the project).
6. Whether any budget provision is made in the current years budget, if so what is the amount provided.
7. Whether rooms are to be single, double or treble seated.
8. General requirements of accommodation.
- 9.

**A-Trainee Hostels.**

- a) No. of trainees.
- b) No. of visiting faculties, if any.
- c) No. of wardens' quarters.
- d) No. of Staffs' Quarters.
- e) No. of garages, cycle sheds etc.
- f) Whether separate dining halls and kitchen for gents & ladies or for vegetarian & non-vegetarian required.
- g) Special requirements:
  - i) Common room and lounge.
  - ii) Canteen
  - iii) Reading Room and Library
  - iv) Auditorium
  - v) Dispensary
  - vi) Gymnasium.

**B- Officers' Hostel**

- a) No. and rank of officers and accommodation required for each.
  - b) No. of servants' quarters
  - c) No. of garages, cycle shed etc.
  - d) Whether separate dining halls required.
  - e) Special requirements
    - i) Attached bath rooms.
    - ii) Attached kitchenette.
    - iii) Common room and lounge
    - iv) Canteen
    - v) Reading room and library
    - vi) Auditorium
    - vii) Billiard rooms
    - viii) Dispensary and sick bed.
- 9) Any other particulars.



**PROFORMA 1-C**

Proforma of particulars to be furnished by the concerned departments when initiating building projects which are to be executed by Company Hqrs./ Area/ Project/ Unit.

**Residential Building**

1. Name of Department.
2. Name of the work.
3. Location.
4. Whether land is available, if so, what is the area; if not whether land acquisition proceedings have been initiated.
5. Approximate cost of the project (whether any limit has been fixed regarding the cost of the project).
6. Whether any budget provision is made in the current years budget, if so, what is the amount provided.
7. Pay Scales of the officers with their numbers for whom the quarters are required.
8. No. of stories desired.
9. Any provision to be made in the lay-out for future expansion, if so, number of quarters with pay scales of officers concerned.
10. What amenities are to be provided. Approximate floor area may be given with any other particulars to be considered :
  - (i) Shopping Centre.
  - (ii) Recreation Centre.
  - (iii) Dispensary or Hospital.
  - (iv) School
  - (v) Any other special requirements.
11. Whether water supply, sewage disposal, electric fittings, etc., to be provided.
12. Whether power plugs are required.
12. Any other particulars.

**PROFORMA- 2**OFFICE OF THE CGM(C)/ GM(C)/SO(C)

The Sr. Executive Engineer(C)/Executive Engineer(C)

.....  
 .....

Subject:

Reference:

The following particulars in connection with the above may kindly be furnished to this office at an early date.

- 1) Dimension of all boundaries and diagonals or angles sufficient to enable to draw out the complete site plan.
- 2) Position of all existing structures or/ and permanent marks such as wells, trees, paths, roads, drains may be clearly indicated on the plan together with their dimension, widths, etc. Any of the above features to be retained may be shown on the plan.
- 3) Any structures existing within 20 fts (6 mtrs). Of the boundaries giving height of the same, also general buildings existing in the near vicinity giving their character, heights and purpose. The sizes of window and door openings, if any, of the structures abutting the site and their right of way and light etc. may be clearly mentioned.
- 4) All roads abutting the site together with their widths, berms and importance with regard to traffic etc.
- 5) All levels, if any, may be marked in relation to all existing roads crown or road level.
- 6) Direction of north as also the general prevailing winds in the different parts of the year. Average rainfall during the year.
- 7) All services available in the localities, such as municipal sewers, water supply (its pressure in relation to height) and electric supply together with their mains, if possible.
- 8) All local Municipal Bye-laws or lay-out schemes affecting the site particularly in relation to the set-back lines on roads, front, rear or side, total built-up area allowed and permissible height.
- 9) All local materials for construction together with their uses in local practice and mode of construction with regard to walling, roofing and general finishes.
- 10) Complete plans, elevation and section of the existing structures together with photographs and brief specification in case extension is desired to the same.
- 11) Any other information pertaining to nature of soil and its capacity, or zone falling in the seismic area etc., may be given.

**Note: All information desired above may please be duly signed by the issuing officer.**

(CGM(C)/ GM(C)/ SO(C) )

**Proforma 3 – A**

**OFFICE OF THE (CGM(C)/ GM(C)/ SO(C)**

.....  
.....

**To**

**The Sr. Executive Engineer(C)/ Executive Engineer(C)**

.....  
.....

**Name of the work:**

Kindly furnish the following information for the above work as early as possible in order to enable this office to prepare preliminary estimate.

- i) Name and nature of soil strata upto \*(3-3.5 meters) where footings are to be founded. If black cotton or filled up soil is met with, depth of such soil.
- ii) Approximate recommended depth of foundation.
- iii) Approximate recommended bearing capacity of soil.
- iv) Whether any special type of foundations are to be provided.
- v) Sub-soil water level (Maximum).
- vi) Any existing building to be dismantled or telegraph or electric poles or cables or sewers to be shifted or thick jungle clearance to \*(3-3.5 metres) be done with rough details. Encroachment by foundations of the structures abutting the site, if any, may be indicated with sketches.
- vii) Whether site requires extensive leveling and if so, the cost with approximate details.
- vii) Data regarding high flood levels in case area is liable to flooding.
- ix) Details of external services :-
  - a) Water mains : Whether they are available for our connections and if so, at what distance and of what size. If not specify what type of well to be constructed (open well, etc., with size and depth) and the approximate cost of construction. In case of large requirements of water whether the local body will provide adequate supply.
  - b) Sewer mains: Whether they are available for our connection and if so, at what distance?
  - c) Electric mains:

d) Road : Whether any approach road is to be constructed beyond that shown on site plan; if so, of what length? Give specification locally adopted and rate per sq. mtr. of road surface.

e) Storm water drain and culverts : general arrangement of drainage. Any storm water drains required with approximate sizes.

Cost index with detailed calculations, leads of materials and reference to Schedule of Rates applicable.

Nearest Railway Station and distance of site from the Station.

Whether any special provision are required due to special local conditions e.g. stone work instead of brick work, etc.

(CGM(C)/ GM(C)/ SO(C))

1. Copy to the concerned E&M Engineer at Hqrs./ Area/ project/ Unit for intimating the amount required for external electrical services to be provided for in the preliminary estimate. The (prescribed percentage or the) amount should be given separately for connection to electric mains, sub-station equipment, pumping set for water supply & its erection and street lighting etc.

If the provision required for internal electrical services will be different from the usual provision of 12.5 % of the building cost, (or fixed amount)\* the additional rates should be given in a specific manner.

(CGM(C)/ GM(C)/ SO(C))

**Proforma 3 – B**

OFFICE OF THE (CGM(C)/ GM(C)/ SO(C)

.....

.....

To

The Sr. Executive Engineer(C)/ Executive Engineer(C)

.....

.....

**Name of the work:**

Kindly furnish the following information for the above work of Water Supply Scheme as early as possible in order to enable this office to prepare project estimate for the same :-

1. (a) What is the area in acres to be served by the scheme?  
 (b) Present population to be catered for.  
 (c) Probable population after 20 years to be catered for .  
 (d) Per Capita Water supply required by the sponsoring authorities or Municipal bye-laws.
  
2. (a) Site plan of the area for which water supply is required showing the building to be served with spot levels at (200 fts/ 60 mtrs.) intervals. The plan should show the layout of the buildings, main roads, service roads etc., and ground formation levels alongside of all roads shall be given at intervals of 60 mtrs.  
 (b) If it is anticipated that any additional areas are to be covered in this scheme at any future date, these should be marked in the plan and the requirements given.
  
3. State if there is any existing filtered water supply in the area or in the vicinity. If so, furnish the following particulars:-
  - i. A key plan showing the area to be served and the nearest main from which water is proposed to be tapped and the point of tapping.
  - ii. State the size of the main and if it is adequate to cater for the additional supply required for the project .
  - iii. Pressure available in the main at the proposed point of tapping and the reduced level of the main at this point.

4. If supply is to be taken direct from the storage reservoir, give the following details :-

- i). Site of the reservoir with reference to the site to be developed for water supply & distance from site.
- ii) Capacity of the reservoir.
- iii) Whether it is capable of meeting the extra demand in the worst summer.
- iv) Reduced level of the reservoir floor and depth of water in reservoir
- v) Longitudinal sections of the proposed alignment of the main from the reservoir to the site with nature of soil and sub-soil

5(a) If there is no water supply in the area, how do you propose to provide water supply :-

- i) From open or tube wells for smaller groups of buildings or colonies :
- ii) From any existing perennial sources of water supply, e.g., river, stream, canal etc. Give the details of dry weather and monsoon flow, low water level and R.F.L. etc. Give details of weirs, if any required, for heading up water in the stream, arrangements for purifications, location of intake-well, filter beds, pumping station etc. Also give an index plan showing the recommended location of water works.

(b) Indicate the size and depth of open or tube wells, expected supply per hour and approximate cost of the installations including cost of delivery main upto site.

6. In case storage or service reservoirs are required, possible location of reservoir to be indicated on an index plan alongwith the ground levels at the site. In case a high level reservoir is to be constructed local restriction regarding maximum heights due to proximity of air-fields if any may be indicated.

7. Information about the quality of water available from the source and suggestions for treatment.

(CGM(C)/ GM(C)/ SO(C))

Copy to:-

- 1) The concerned E&M Engineer Hqrs./ Area/ Unit for intimating the information in connection with the existing electric mains, their distance from the area, type of power available and adequacy of electric energy etc.

**PROFORMA 3-C**OFFICE OF THE CGM(C)/GM(C)/ SO(C)

.....  
 .....

To

The Sr.Executive Engineer(C)/ Executive Engineer(C)

.....  
 .....

Name of Work :-

Kindly furnish the following information for the above work of sewerage scheme of the area as early as possible in order to enable this office to prepare project estimate for the same.

1.
  - (a) What is the extent of the area for which sewerage scheme is to be designed ?
  - (b) What is existing population?
  - © What is the proposed ultimate density of population?
  - (d) What is the per capita water supply?
  
2. Give a site plan of the whole area showing the existing and proposed buildings and other structures, spot levels at intervals of (200 ft.)\* and ground formation levels alongside of all main and service roads (existing or proposed). \*(60 metres).
  
3. Is there any sewerage system in the area? If any, the following particulars should be furnished :
  - (a) Size of the nearest sewer and its distance from the site.
  - (b) Size of the nearest trunk sewer and its distance from the site.
  - (c) Whether the existing sewer is capable of taking the additional sewage from the site to be developed. If not, state alternative proposals for disposal of sewage.
  - (d) If the existing sewer is capable of taking the addl. Sewage, give "L" section of the sewer for a reasonable length showing the I. Ls, gradients and falls, if any, as well as position of manhole to which the proposed sewer from the colony to be developed may be conveniently connected.
  - (e) What is the level of sewage in the manhole (reference to (d) above) for peak discharge.
  - (f) A plan showing the layout of the branch or trunk sewer and proposals for the outfall sewer connecting to manhole with invert and ground levels.
  
4. Whether the proposed outfall sewer from the area to be developed will have to be designed to carry sewage from any other area also. If so, the additional areas to be served may be shown on the site plan giving their extents with the present and anticipated density of populations.

5.
  - (a) Where a long outfall sewer is necessary, give a plan and longitudinal section of the proposed alignment showing the ground levels.
  - (b) What is the nature of the soil and sub-soil along the proposed alignment?
  - (c) State the ownership of the land through which the proposed alignment passes.
  - (d) Are there any obstructions e.g. railway lines, drainage courses etc., on the alignment ? If so, their nature and other relevant details may be given.
  
6. If there is no sewerage system in the area :
  - (a) How do you propose to dispose of the sewage?
  - (b) A survey plan showing the likely location of the disposal works (septic tanks or other plants) may be furnished showing the prevailing direction of wind.
  - (c) How is the effluent proposed to be disposed of? If there is any natural water-course in which the effluent is proposed to be discharged, the following particulars should be furnished :
    - i. Ordinary water level and H.F.L.
    - ii. Specify if there are any objections to discharge the effluent into the water course or Nallah and if so, what alternative do you suggest?
  
  - (d) Nature of soil i.e. whether it is absorbent or otherwise.
  
7. Any other information in connection with the sewage scheme.
  
8. Full particulars about any local rules and restrictions regarding sewage disposal.

(CGM( C)/ GM( C)/ SO( C) )



**PROFORMA 3-D**

OFFICE OF THE CGM( C)/GM( C)/SO( C)

.....  
.....

Name of Work :

Kindly furnish the following information for the above work of Storm Water Drainage of the area as early as possible in order to enable this office to prepare project estimate for the same.

1) Give a survey plan of the area for which the Drainage System is to be designed showing the spot levels at intervals of 200 ft., and proposed layout of roads and buildings. Formation levels of ground alongside of the roads and crown levels of roads may be given at intervals of (200 ft.)\* (60 mt.)

- 2 (a) If the area forms a part of a bigger catchment, a site and contour plan of the entire catchment area should be given.
- (b) If it is likely that drainage from the upper portion of the catchment enters the area now proposed to be developed, suggest measures to intercept the drainage or indicate the probable additional run off to be allowed for.

3.The maximum intensity of the rainfall in the area and its duration and the total annual rainfall.

4.Nature of the soil and vegetarian in the area.

5.Full particulars of any natural water-course or Nallah passing near the area, into which the area under consideration can be drained, together with the H.F.L. in the same at the point or points where it is proposed to discharge the storm water drainage. A plan showing the Nallah and “L” section of the Nallah showing the H.F.L. for about two furlongs above and below the point where it is proposed to discharge the drainage into the Nallah may also be supplied.

(CGM( C)/ GM( C)/ SO( C) )

**PROFORMA 3-E**  
**OFFICE OF THE (CGM( C)/ GM( C)/ SO( C )**  
 .....

To,

The Sr. Executive Engineer©/Execcutive Engineer©  
 .....

Name of Work :

Kindly furnish the following information for the above work of development of the area as early as possible in order to enable this office to prepare project estimate for the same.

1. Survey plan of the area. The plan should show all local features such as existing structures, nallahs, wells, drains, sewers, water mains, electric mains and cables, telegraph & electric poles, brick kilns, fields, ponds, trees, roads, culverts & bridges, etc.
2. Contour plan of the area with spot levels taken at not more than (200'0\* distances. If possible, the levels should be reduced with reference to G.T.S. Bench Mark. Otherwise full description of assumed R.L. of the Bench Mark should be given. \*(60 metres)
3. Index plan of the area showing places from where earth for filling the areas, if necessary, may be brought or where the earth obtained from cutting of the area should be disposed of.
4. Crown levels of all the adjoining roads, at suitable intervals.
5. Nature of soil surface as determined by visual inspections.
6. Nature of sub-soil strata as determined by trial pits or trial bores at the rate of one pit or bore for every 20 acres or less. Cross sections of trial pits should be suitably increased.
7. Details of water mains as existing indicating the distance, diameter, pressure in the water mains.
8. Details of existing sewer mains, if available, indicating distances, invert level, diameter & spare capacity of sewer mains.
9. Details of existing storm water drains and culverts, indicating section of drains, slope, spare capacity, invert level etc. It should also be indicated if the area itself is a part of bigger catchments area and thus receives storm water from other areas. If so, full details should be given.
10. Cost index of the place with detailed calculations.
11. Data regarding High Flood Levels, in case area is subject to flooding or is lower than H.F.L.

CGM( C)/GM( C)/ SO( C )

**REPORT ON DETAILED ESTIMATES**

OFFICE OF THE .....  
(HQRS./AREA/ PROJECT/ UNIT)

Estimate No. & Date :

Name of work :

Brief description of the project :

Budget provision/ Allocation :

Major Head

Minor Head

Detailed Head

Note: The entries against each of the above should be made in accordance with the classification prescribed.

(SR.EE( C)/ EE( C))

DETAILS OF MEASUREMENTS

Name of Work :

.....

Details of work	No.	Measurements			Quantities
		L	B	H	
.....					
.....					
.....					

.....

(SR.EE(C)/ EE(C))

ABSTRACT OF COST : ORIGINAL ESTIMATE

Company :

Hqrs./Area/Project/ Unit:

Name of work

---

Item No.	Sub heads and  items of work	Quantity or no .	Rate per ..... Rs. P.	Amount ..... Rs.	Total  Rs.

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(SR.EE(C)/EE(C))

**PROFORMA – 1**

## Levelling

- 1) Name of project
- 2). (a) Reference to administrative approval and expenditure sanction and their amounts.  
(b) Provision for leveling.
3. (a) Amount of detailed estimate.  
(b) Rate per square metre in the detailed estimate and how does it compare with provision in administrative approval.

**Part I – Engineering Appreciation**

4. (a) Total area to be leveled.  
(b) General description of site.  
(c) Are there any low areas which may be left green or developed as lakes or ponds ?  
If so, can earth for filling be made available from such development ?  
(d) High area to be left with landscaping?
5. (a) Classification and nature of soil.  
(b) Result of trial bores, if any.  
(c) Exact classification of the different strata, if rocky.  
(d) Possibility of blasting, keeping in view local bye-laws and proximity of important buildings.  
(e) Has necessary credit for hard rock been allowed?
6. (a) Are the proposed formation levels such as cutting and fitting balanced.  
(b) (i) Site from where earth is to be brought and its lead, in case of excess filling  
(ii) Amount involved.  
(iii) Royalty payable, if any.  
(c) In case of excess cutting :  
(i) Site for the disposal of surplus earth.  
(ii) Extra lead and amount involved.  
(iii) Possibility of selling the earth.

7. Levels of the adjoining sites, roads and buildings as compared to the site being leveled.
8. Do the proposed formation levels obstruct the existing natural drainage ?
9.
  - (a) Are any terrace proposed to economize on earthwork?
  - (b) If so, do the proposals have the concurrence of the concerned competent authority?
10. Have the proposals for development/ layout been approved by local authority?

**Part II – Materials**

11. Special T & P like heavy earth-moving machinery needed for the execution of the project.

**PROFORMA –2**Filtered Water Supply

1. Name of the project.
2. (a) Reference to administrative approval and expenditure sanction and their amounts.  
(b) Provision for ancillary works such as overhead reservoirs, pumps, etc.
3. (a) Amount of detailed estimate  
(b) Rate per sq. metre in the detailed estimate and how does it compare with provision in administrative approval.

**Part I – Engineering Appreciation**

4. Area covered (Give details of areas covered if any, which have not been provided for in the A/A, future extensions, etc.).
5. (a) Population :  
(b) Basis of assessment :  
(c) Future increase.
6. (a) Source of Water Supply:  
(b) Has permission of the local body to tap water from their source been obtained ?  
(c) Will sufficient quantity be available for areas under consideration?  
(d) Distance of the source from the periphery of the Scheme.  
(e) Brief description of the system of water supply from intake to the distribution stage.
7. (a) Rate of supply with break-up showing allowance for industrial, horticulture and other uses.  
(b) Is unfiltered water supply available ?  
(c) If not, what, and on what basis, provision has been made for extra water required for lawns, parks, etc.
8. (a) Pressure available at source :  
(b) If required pressure is not available state proposals to augment it.
9. Design formula adopted, value of the co-efficient of rugosity adopted in design.
10. Layout of mains
  - (a) Closed ring or tree type pattern with dead ends (Give reasons for choice ).
  - (b) Type of buildings and numbers of storeys commended.
  - (c) Minimum head available in the distribution system; and is it suitable ?
  - (d) Has minimum size of pipes required as per rule of the local body and concerned authority of the deptt. been provided ?



11. Has the concerned authority of the deptt. been consulted with regard to the number of fire hydrants, their location and type?
12. Capacity and design particulars of overheads tanks, sump wells, pumps, etc.
13. Has adequate provision of luice valves, reflux valves, air valves, scour valves and public hydrants been made ?
14. Have the lines been taken sufficiently deep to keep the air valve spindles flush with the ground level ?
15. Has provision been made for laying the pipe or digging the trenches under sub-soil water level.
16. Is cutting through rock involved ?
17. Has provision been made for crossing roads and nallahs, where necessary ?
18. Are there any obstructions such as transmitting station, aerodrome, etc. which necessitate diversion ?

**Part II – Materials.**

19. Requirements of different sizes/ type of pipes and specials and method of procurement.
20. Requirements of pig. Lead.
21. Have requirements of pumps and accessories been determined in consultation with the concerned E&M Engineer ? Give details.
22. Requirements of other materials/tools and plants.

**PROFORMA –3**  
Unfiltered Water Supply

1. Name of the project..
2. (a) Reference to administrative approval and expenditure sanction and their amounts.
  - (b) Provision for unfiltered water supply.
  - (c) Provision for ancillary works such as overhead reservoirs, pumps, etc.
3. (a) Amount of detailed estimate.  
(b) Rate per sq.metre in the detailed estimate and how it compares with revision in administrative approval.

**Part 1 – Engineering Appreciation**

4. Total area of development scheme.
5. Area of grassy lawns.
6. Basis of working out requirements of water needed for horticultural purpose.
7. Source from which the unfiltered water is proposed to be tapped.
8. (a) Is the water suitable for horticultural purposes ?  
Has this been ascertained from laboratory tests ?
  - (b) Degree of salinity if the water is saline.
9. If supply is proposed to be tapped from existing unfiltered/ filtered water mains :
  - (a) Have the mains the capacity to supply the required quantity ?
  - (b) Is the pressure in the existing mains enough to serve the area ?
10. If the source of supply is from wells/ tube wells indicate :
  - (a) possibility of pumping from existing open well, if any
  - (b) feasibility of digging open wells
  - (c) possibility of putting tube wells, if open wells are not suitable;
  - (d) exploratory work done earlier in the proximity of the area to determine feasibility of providing wells/ tube wells.
11. Have the development / layout proposals been approved by the local authorities?
12. Design formula adopted for designs, value of coefficient of rugosity adopted in designs.

13. Layout of mains :

- (a) Closed ring pattern or tree type with dead ends.
- (b) Reason for choice.
- (c) Minimum head available in the distribution system and is it suitable?
- (d) In case fire hydrants have been provided in unfiltered water lines, has the concerned authority been consulted with regard to the number of fire hydrants, their location and type?

14. Capacity and design particulars of overhead tanks, sump, wells, pumps, etc.

15. Has adequate provision of sluice valves, reflux valves, air valves, scoured valves been made?

16. Have the lines been taken sufficiently deep to keep the sluice valve spindles flush with the ground level?

17. Has provision been made for laying the pipe line or digging the trenches under sub-soil water level?

18. Is cutting through rock involved?

19. Has provision been made for crossing roads and nallahs, where necessary?

20. Are there any obstructions such as transmitting station, aerodrome, etc. which necessitate diversion?

### **Part II – Materials**

21. Requirement of different sizes/ types of pipes and specials and method of procurement.

22. Requirement of pig. Lead.

23. Have requirements of pumps & accessories been determined in consultation with the concerned E&M Engineer.

24. Requirement of any other materials/ tools and plants.

**PROFORMA – 4**  
Sewerage

1. Name of Project.
2. a) Reference to administrative approval and expenditure sanction and their amounts.  
b) Provision for sewerage.  
c) Provision for ancillary works such as pumps, sumps, pump houses, connection to existing ducts, septic tanks, etc.
3. a) Amount of detailed estimates.  
b) Rate per sq.metre as per the detailed estimate and how it compares with provision administrative approval.

**Part I – Engineering Appreciation**

4. Area covered (give details of areas covered, if any, which have not been provided for in A/A: future extensions, etc.)
5. (a) Population.  
(b) Basis of assessment.  
(c) Future increase.
6. Sewer:
  - (a) Shape of sewer
  - (b) Minimum size used.
  - (c) Slopes adopted
  - (d) Self cleansing velocity not possible, have flushing arrangements been made?
  - (e) Minimum velocity attained in the design.
  - (f) Is designed discharge three times the average discharge?
  - (g) Brief description of the system of sewerage.
  - (h) Design formula and coefficient of rugosity adopted.
7. Manholes :
  - a. Minimum depth of starting manholes.
  - b. Types of manholes ( rectangular, circular, arch type).
  - c. Types of manhole covers used (whether heavy, medium, light) and principles governing their use.
  - d. Has location of manholes been fixed on the consideration that :
    - i. each manhole should serve maximum number of plots.
    - ii. Manholes provided at bends change in diameter and gradients.

- (i) Maximum distance between two manholes.
- (j) Distance of vent shafts; has provision for these been made in the estimates?
- (k) Has provision been made for drop connection?
- (l) What is the maximum velocity in the sewer? (upto 2.44 mtrs per second avoids erosion of invert).

10. Disposal :

- a. Arrangement for disposal of sewerage
- b. Has permission of local body been sought if discharge is led into an existing sewer direct?
- c. Distance of the existing duct from the last manhole in the area.
- d. Do the invert levels permit connection to existing duct by gravity? If not, has provision been made for pumping the sewage?
- e. If pumping is necessary :

- (i) has provision been made for sumps, pumps, pump house and rising mains?

- (ii) Is electricity available ?

- (iii) Is arrangements for a prime mover in an emergency breakdown required.

- f. Details of sumps with regard to capacity, diameter.
- g. (i) Details of pumps with regard to capacity, horse power, type of pumps (vertical or horizontal)etc.
- (ii) Efficiency factor assumed in the design of pumps.

(h) Details of pump house, rising mains, etc. In case connection to existing duct has not been provided :-

- (i) has provision for septic tank, trenches been provided?
- (ii) have soak pits or dispersion trenches been provided?
- (iii) What is the type of soil?

- (g) Maximum and minimum depths below ground level of the ground water table.
- (h) Arrangements for disposal of treated effluents
- (i) If sewers are to be laid in filling or across nallahs, have supports to firm ground been provided?
- (j) Have sewers and water mains been planned on opposite sides of the road.
- (k) Where sewers cross nallah, barrel, etc. has the design been appropriately made?
- (l) In case of stage development schemes or where delay in the procurement of equipment is anticipated, have temporary arrangement been made for disposal work?

9. (a) Has provision been made for concreting upto haunches or around?  
(b) If so, on what basis ?
10. Is provision of excavation under sub-soil water necessary?
11. Has provision been made for laying concrete and sewers under sub-soil water?
12. Is cutting through rock involved?
13. Has provision been made for crossing roads and nallahs?

### **Part II - Materials**

14. Requirements of different types/ sizes of pipes and specials.
15. Requirements of different types of manhole covers.
16. Have requirements of pumps been determined in consultation with the concerned E&M Engineer.
17. requirements of any other materials/ tools and plants.

**PROFORMA –5**

## Roads

1. Name of Project.
2. (a) Reference to administrative approval and expenditure sanction and their amounts.
- (b) Provision to cover the portion of work for which detailed estimate has been prepared.

3. Amount of detailed estimate.

**Part I – Engineering Appreciation**

4. Reference to approval of the layout and alignment by the competent authority.
5. Justification for the choice of the alignment indicating inter-alia, obligatory points.
6. (a) Standards to be followed for :
  - (i) Cross section of the road (indicating number of lanes)
  - (ii) Class of road.
- (b) Have suitable road junctions and crossing been designed and provisions made in the estimate?
- (c) Has provision been made for road signs?
7. Nature of sub-grade and sub-grade preparation suggested.
8. Earth works: cutting & filling balance, if not, what is the
  - (a) Quantity of surplus/ deficit earth
  - (b) Site and lead for disposal of surplus earth (in case of excess cutting).
  - (c) Source for obtaining earth required and lead (in case of excess filling).
  - (d) Royalty payable, if any.
9. Methods and salient features of road crust.
10. (a) Soling
- (b) Wearing coat.
- (c) Surface treatment.
11. (a) Cross section between building lines showing lines showing the hard crust edging (if any), berms, provisions for future widening (if any) storm water drains and their outlets and other services both to be provided immediately and in the near future.
- (b) Existing services, if any.
12. Details of bridges including class of loading for which they have been designed, culverts and other structures provided.

13. Details of land acquisition.
14. Phasing of the Project.
15. (a) Rate of cost :
  - (i) Per unit length for different types of roads
  - (ii) Per unit of the area developed.
- (b)
  - (i) Total cost of the work.
  - (ii) Comparison of total cost with respect to provision in preliminary estimate.

### **Part II – Materials**

16. Soling Stone :
  - (a) Total quantity
  - (b) Name of quarry.
  - (c) Distance of quarry from site ( Does schedule rate for supply of soling stone indicate this lead? If not, has provision been made for extra lead).
  - (d) Market rate at quarry.
  - (e) Prevalent carriage charges.
17. Stone ballast :
  - (a) Total quantity
  - (b) Name of quarry.
  - (c) Distance of quarry from site (does schedule rate for supply of stone ballast indicate this lead?)
  - (d) Market rate of quarry
  - (e) Prevalent carriage charges.
18. Bitumen :
  - (a) Total quantity
  - (b) Arrangements for procurement.
19. Cement :
  - (a) Total quantity.
  - (b) Arrangements for procurement.
20. Steel :
  - (a) Total quantity.
  - (b) Arrangements for procurement
21. Pipes :
  - (a) Total quantity
  - (b) Arrangements for procurement.



## 22. Total and Plants :

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Sl.No.	Equipment with details	Source of procurement	Cost	Foreign exchange
1	2	3	4	5
<hr/>				

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**PROFORMA – 6**  
**Horticultural Works**

1. Name of the Project.
2. (a) Reference to administrative approval and expenditure sanction.  
(b) Amount provided for horticulture work.
3. Amount of detailed estimate

**Part I – Horticultural Appreciation**

4. Brief scope of the work contemplated.
5. Total area of the development scheme.
6. Area of the garden/ greenery.
7. Detailed landscape plan of the area quoting reference of approval of the same.
8. Type of soil :
  - (a) Nature (i) Saline or alkaline (ii) Full of kankar, moorum or building rubbish
  - (b) P. H. Value
9. (a) Source of supply of earth if top soil is proposed to be replaced by good sweet earth.  
(b) Site for dumping the replaced earth  
(c) Proposal, if any, to apply cowdung or fresh cowdung to (5' – 15")\*  
depth in case the soil is alkaline. \*(1.5 m – 4.5 m)  
(d) is the area duly leveled for the development of horticulture works.

**Part II - Drainage**

10. Is the drainage from room provided in such a way as to drain off the flow of rain water on the back of the house and not on the lawn ?
11. Area the levels and slopes of bajri paths and lawns suitably adjusted.
- 12 Do levels permit a slope in the lawns between 1/12 and 1/100?
13. Is storm water drain available in the vicinity to catch rain water from the lawns?
- 14 Suggestions, if any, for improving drainage of lawns.

**Part-III – Water Supply.**

15 (a) Is the unfiltered water supply proposed to be tapped from existing unfiltered water mains?

(b) Is adequate supply of unfiltered water available?

( c) Area where tube wells proposed to be installed? (It should be kept in mind that (3000 gallons)\* of water per acre of green per day will be required). \*(13,500 litres)

16 Have unfiltered water mains and distributaries been laid and hydrants installed?

**Part IV – External Services.**

**17.** Have all the external services including roads, storm water drains, sewerage and electric wire been provided before horticultural works are taken up?

**PROFORMA – 7**

## Electrical Distribution Lines

1. Name of Project.
2. (a) Reference to administrative approval and expenditure sanction and their amounts  
(b) Provision to cover the component part for which the detailed estimate has been prepared.
3. Amount of detailed estimate.

**Part I - Engineering Appreciation**

4. Brief specification of the system.
5. Average rate per sq.metre of (i) detailed estimate. (ii) Preliminary estimate.
6. (a) Agency for execution.  
(b) Departmental charges.
7. Special T&P required
8. (a) Is supply proposed to be taken from the existing L.T. Net work of the supply authority?  
(b) If yes, is element of cost of service connection based on estimate from the supply authority?  
\*(c) If L.T. supply not available, how is electric supply proposed to be obtained
9. Provision for further expansion and its extent.
10. Tariff. ( H.T. bulk, L.T. bulk, or retail L.T.) applicable.
11. In case of bulk supply, has provision been made for :  
(a) Equipment ?  
(b) Buildings for sub-stations and switching stations ?
12. Has the concerned authority been consulted for local switching of 11(b)?
13. Is stand-by required, if yes, has provision been made for it?
14. Statutory requirements of over-head or underground cables.
15. Details of phasing, if any, or different portions of work in consonance with the progress of civil work.

16. Special remarks, if any.

\* Give a brief description of the system as in the example below:-

“..... Supply is proposed to be taken from the L.T. feeders of the local electricity undertaking by means of over-head/ underground line. The distribution is proposed to be carried out by over-head lines carried on PCC/Steel tubular/rail poles. Copper/ Aluminum conductors of ..... size will be run for the main roads and of ..... Size on the other roads. For roads having a width of ..... metres, the lines will be taken along with central verge with double armed brackets for lighting fixtures. For roads with a width of ..... metres, a staggered layout will be adopted.

Also indicate the arrangements adopted for sectionalising and isolating portions of the network for the purpose of maintenance and repairs.”

\* In case of composite lines carrying street light and L.T. distribution line, the basis of allocation of cost to street lighting and L.T. distribution lines should be given.

**PROFORMA –8**  
Street Lighting

1. Name of Project.
2. (a) Reference to administrative approval and expenditure sanction and their amounts.
- (b) Provision to cover the component for which this detailed estimate has been prepared.

**Part I – Engineering Appreciation**

3. Brief specification of the system.
4. Average rate per square metre of :-
  - (i) Detailed estimate
  - (ii) Preliminary estimate.
5. (a) Agency for execution
- (b) Departmental Charges.
6. Special T&P required
7. Brief particular of source of power supply.
8. Provision of future expansion and its extent.
9. Tariff applicable
10. Phasing of different portions of the work in consonance with the progress of civil work.
11. Has the location of poles been decided in consultation with Director of Horticulture and the landscape architect?
12. Special remarks, if any.

Give brief description of the system as in the example below:-

”..... Incandescent High pressure mercury vapour/ Fluorescent lamps/ Sodium lamps will be provided on ..... roads. The type of fittings shall be enclosed/ open/ semi-open tubes and these will be suspended / fixed on brackets. The system of wiring will be with over-head copper/ aluminum conductors of sizes/ connection to poles will be given by means of underground cables of..... sizes and joints shall be provided in a suitable recess at the bottom of the poles. RCC/Steel tubular ..... Types poses will be used. For the major roads of widths..... Poles will be located on the central verge with double are brackets for the lighting fixtures.

For minor roads, poles will be located in a spacing of ..... pattern with an average spacing of ..... An average illumination of ..... of is arrived at on the main roads. Also indicate scheme of controlling lights, i.e. switching equipment.”

In case of composite lines carrying street light and L.T. distribution lines, the basis of allocation of costs to street lighting and distribution lines should be given.

Part II –Information Regarding Procurement of Materials.

Sl. No.	Principal items to be supplied by the Department for use on the work	Available with Central/ Area/ Unit stores or to be indented.	Items to be especially procured for the work/ Details of procurement ----- Source Time	Foreign Exchange required
(1)	(2)	(3)	(4)	(5)

N.B.

1. For major and important items give full technical description of specification in column
2. For items to be imported, give a separate item-wise note on justification and the inescapability of expenditure on foreign exchange.
3. If any special difficulty is likely to be encountered in procuring important materials, give a note suggesting steps that may be taken to overcome them.

**PROFORMA – 9**

Town Planning & Housing Scheme

(The following information should be available before a town planning scheme can be prepared).

1. key plan of the area showing :
  - (a) location of site in relating to adjoining land uses.
  - (b) type of development on adjoining plots.
  - (c) number of storeys (on adjoining plots).



## **Subsoil Investigation for Civil Engineering Projects**

1.00 Foundations in Civil Engineering structures receive the load from superstructure and transmit these to the ground below. The safety of a structure is highly dependent on the safety of its foundation and error of judgment in proper design and construction of foundation can lead to serious problems. Foundation failures occupy the pride of place in the annals of Civil Engineering failure. In the design of any foundation. It is soil which is the weaker bearing material and it is primarily the strength of soil which must be reliably assessed to safely transmit the load on it.

### **2.00 Bearing Capacity**

Commonly, foundations are designed on the basis of safe or allowable bearing capacity, which is a scaled down value of assessed ultimate bearing capacity of soil. Usually a factor of safety of 3 is adopted to derive safe bearing capacity from ultimate bearing capacity.

### **3.00 Settlement Characteristics**

In addition to bearing capacity of foundation, one has to decide the settlement and differential settlement permissible in a structure for its serviceability. Once the limits of tolerable settlements are fixed, tests should be conducted on soil samples to determine settlement characteristics of the soil essential to predict settlement characteristics of the soil essential to predict settlement under actual loads. The predicted settlement should be checked with allowable settlement and foundation design should be modified if necessary to satisfy limits.

### **4.0 Subsoil Investigation**

The subsoil investigation is primarily aimed at determination of bearing capacity and settlement characteristics as explained above. Bureau of Indian Standard (BIS) has extensively codified the procedure for conducting various field/ laboratory tests to be conducted for the above purpose. Engineer Incharge/ Department should follow these codes whenever subsoil investigation is needed.

4.01 It is essential that subsoil investigation is carried out in important projects by specialized agencies who have proven expertise in this field.

Subsoil investigation report should comprise of the following :

- i) A brief description of the project along with nature of loads on foundations.
- ii) A general description of the geomorphological nature of the terrain along with major discontinuity, if any.
- iii) Description of various field tests carried out with nature of instrumentation.
- iv) Description of laboratory tests carried out with characteristics of samples (disturbed and undisturbed, representative).
- v) Determination of ground water table.
- vi) Logical analysis and presentation of test data.
- vii) Assessment of safe bearing capacity.
- viii) Settlement computation.
- ix) Recommendations on the type of foundation suitable for the suggested structure.

4.02 It is not possible to define the number of bore holes needed for a project since the size of the project as well as loading pattern and its severity can not be the same every where. However, a minimum of 2 to 3 bore holes is recommended in sites with uniform soil deposits. For important projects, these requirements should be revised upwards depending on the nature of the problem.

4.03 Subsoil water plays a very important part in the construction of foundations and the durability of the foundation is also dependent on the nature of water in a site. Since presence of corrosive chemicals drastically reduce the expected life of a structure, it is essential that test of water samples should be conducted along with subsoil investigation as explained above. The BIS also provides adequate information on the method of testing of water which should be followed.

#### **4.04 Special Foundation**

For severely loaded structures and poor soil condition special foundations such as piles/ well foundation/ raft becomes necessary. For such special foundation the investigation should cover the specific requirement of these special foundations. For pile foundation in particular, the method of field test of piles is covered in relevant codes and this should be followed. There are many coalfields particularly in the Western part of the country where black cotton soil is encountered. This soil has got large swelling characteristics and potential for excessive settlement. Assessment of mineralogical characteristic of the soil and determination of swelling potential are necessary when black cotton soil is encountered. Relevant BIS codes shall be consulted in such a situation. Design of under reamed piles for black cotton soil should conform to the provision of relevant IS code.

**APPENDIX – 7**  
 [REF. Cl. 2.04 ]

REGISTER OF ESTIMATES

Name of Company : .....

Name of Area : .....

Name of Unit : .....

Sl. No.	Date of preparation of estimate	Estimate No.	Name of the work	Amount	Awarded Amount & Date	Revised Estimate Amount & Date
1	2	3	4	5	6	7

**APPENDIX-8**

(ref. CL.2.05)

**STANDARD SCHEDULE OF CONTRACT PERIODS FOR BUILDING WORKS.**

Type of Building	ESTIMATED COST					Add For
	Upto Rs. 50,000/-	Rs.50,000 to Rs. 2 lakhs	Rs. 2 lakhs to Rs. 5 lakhs	Rs. 5 lakhs to 10 lakhs	Rs.10 lakhs to Rs. 25 lakhs	
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>
Single storied	4 months	6 months	8 months	9 months	10 months	1 month
Double Storied	6 months	8 months	9 months	10 months	11 months	1 month
Three storied	8 months	8 months	11 months	12 months	13 months	1 month
Four Storied	--	11 months	12 months	13 months	14 months	1 month
Five Storied	-	-	14 months	15 months	16 months	1 month
Six Storied	-	-	-	17 months	18 months	1 month
Seven Storied	-	-	-	19 months	20 months	1 month
Eight Storied	-	-	-	21 months	22 months	1 month

**NOTE:**

1) This schedule is to serve as a general guideline for fixing contract periods for building work under normal conditions, in company Hqrs. like Kolkata, Dhanbad, Ranchi, Bilaspur etc. or any other places where the building trade is well organized. For small and out of the way places in coalfields where normal facilities for construction of buildings may be lacking, contract periods should be fixed suitably after taking into consideration the total conditions. **For works other than building works completion time schedule may be computed based on the above guidelines and other guiding factors.**

2) When the contract period runs through monsoons, extra period may be allowed for the same on the assumption that progress during monsoons is about half of the progress in fair weather. For example in Delhi where the monsoons last for about 2 months, 1 month may be added, and in places like Kolkata and Bombay where monsoons last for four months, two months, 1 month may be added, and in places like Kolkata and Bombay where monsoons last for four months, two months may be added.

3) Where a basement is to be provided, an extra period of 1 to 2 months may be added depending on the extent of basement and depth of sub-soil water table.

4) Extra period may be allowed for works having special features such as (i) domes, Shells and coffered roofs (ii) extensive stone work, stone veneering and sculpturing and (iii) special finishes and architectural feature.

5) In case of work consisting of a number of small units, such as a group of residential quarters, scattered over a large area, an extra period of 1 to 3 months may be allowed depending on the number of units and their disposition.

6) When work is to be executed in congested areas and on small sites, the period may be suitably increased because of difficulties in storage of building materials.

**TOP SHEET OF TENDER DOCUMENT.**

Name of Work :  
Place of Work :  
Tender Notice No.and Date :  
Date and Time of submission of Tender :  
Date and Time of opening Tender :  
Date of issue of Tender Document :

**SYMBOL OF COAL INDIA**

Name of Consultant (if any) :  
Name and address of the Company  
Issuing Tender :

Signature of issuing authority

**(NB: This should be printed both in English and Hindi).**

**APPENDIX – 10**

[ REF. Cl.4.04.3 (iv) ]

**TENDER ISSUE REGISTER.**

CIL/Subsidiary Company

Tender Documents to be issued

Tender Notice No.

:

From

Date and Time

Office of Sale

:

To

Date and Time

Sl. No	Name and address of applicant	Date of issue	Cash Receipt/ B.D.No.	Signature of issuing Officer	Signature of applicant.
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 NB: Register to be filled up at place/Office of issue of Tender Document.

**APPENDIX-11**

[ Ref. Cl .5.17]

**PROFORMA FOR REPORTING LOSS OF M.B. FOR ITS WRITE-OFF.**

1. The date on which the M.B. was lost.
2. In whose custody it was lost.
3. Detailed circumstances leading to its loss.
4. What efforts were made to trace the M.B.
5. By whom the last measurements were recorded.
6. Whether the measurements have been checked upto the required %-age by the Superior Officer as required under the rules. If not, why?
7. If any register is maintained to watch the movement of the M.B.
8. Whether the M.B. contained the details of any work for which payment has not been made or all the works have been finalized.
9. Whether any audit objection or contractors dispute relating to the M.B. is pending and if so nature thereof, and how it is proposed to settle up.
10. Whether work is susceptible for measurement again; if not, what are the basis on which the Dy. Manager©/Manager©/In-charge of work proposes to make final payment for the outstanding bills.
11. Whether the S.O.©/Dy.G.M.© is satisfied that by writing of fresh measurement on the basis of other subsidiary record, if any, the Company will not be put to any loss and there will be no dispute from any quarter. If no, what steps be suggested to safeguard against any such shortcoming,
12. Details of disciplinary action taken against the persons responsible for the loss.
13. Details of remedial measures taken to avoid recurrence of such cases.
14. Any other remarks.



FORMAT FOR CONTRACTORS BILL FOR CIVIL ENGINEERING WORKS.

..... Coalfields Ltd.  
.....

**UNIT.**

**ORIGINAL/DUPLICATE.**

1. On A/c. or final :
2. Name of Work :
3. Estimate No. of work :
4. Agreement/Work Order No.& Date. :
5. Name of Contractor :
6. Date of Commencement of the Work :
7. Date of completion of the work as per Agreement/Work Order:
8. Extension of time granted, if any, with reference to the order :  
I)  
II)
9. Actual Date of completion of the work :
10. Claims for work done from..... to.....

Description of Work	QUANTITIES OF WORK			Rate & Unit	A M O U N T S			Remarks
	Paid for as per last bill	Since last bill	Upto date		Paid as per last bill	Since last bill	Total upto date	
1	2	3	4	5	6	7	8	9
				TOTAL				

1	2	3	4	5	6	7	8	9
Brought Forward				Total				
			Deduct amount of previous bill				_____	
			Gross amount of the bill				-----	

Dated Signature of Contractor

Certified that the foregoing claims are correct and have been ascertained by actual measurement by Sri..... on..... And recorded at page..... if Measurement Book No..... and that no contractor's measurement has been accepted and that the work has been satisfactorily performed.

MEASUREMENT ACCEPTED

Signature of	Signature of	Signature of	Signature of Engg.Asstt(C)/
Contractor	Sr.EE©/EE©	Engineer©	Sr.Overseer©/Overseer©
			taking measurement

Received the sum of Rupees..... As per foregoing details

Rs.	Witness	STAMP
-----	---------	-------

Contractor

Certified that there are no claims outstanding against the Contractor for this work of ..... on a/c. of materials supply, House Rent, Water Charges, Electric Energy supply etc.

Sr. E.E.(C)/E.E.(C)    Engineer(Civil)    Engg. Asst.(Civil)/Sr. Overseer©/Overseer©

Certified that I have no claims outstanding against the Department for this work and the claim preferred through this bill is in full and final settlement of my claim (\*to be filled in case of final bills)

Contractor.

<p>ounts</p>	<p>Amounts</p>	<p>Certified for payment of Rs.                  .....( Rupees                  .....)</p>
		<p>Dy.Chief Engineer© /Superintending                  Engineer©</p>
<p>3ITS</p> <p>osit .....</p> <p>ores .....</p>		<p>Bill duly checked, audited and passed for                  payment of Rs..... (Rupees                  .....) only and necessary                  deductions have made.</p>
<p>ls attached)</p> <p>ies</p> <p>hed)</p>	<p>-----</p>	<p>Accounts Officer (CE Bills)</p>
<p>EDIT</p> <p>of the bill</p>		





PROFORMA FOR QUALITY CONTROL INSPECTION.

**1. General**

- 1.1 Name of work
- 1.2 H.O/Area/Unit.
- 1.3 Inspecting Officer
- 1.4 Assisted by
- 1.5 Date of present inspection
- 1.6 Reference to memos of previous inspection.

**2. Particulars of Work:-**

Estimated cost put to tender

- 2.2 Tendered amount
- 2.3 Agreement No.
- 2.4 Name of contractor
- 2.5 Registration category/type of contractor
- 2.6 Date of start of work.
- 2.7 Date of completion
- 2.8 %age progress of work at the time of inspection.

**3) Routine Quality Control:-**

3.1 Quality control aids.

3.1.1. Is field staff equipped with:

- a) Copy of agreement with relevant specifications(detailed as well as special)
- b) Copy of preliminary estimate, detailed estimate and management
- c) Up-to-date architectural as well as structural drawings.
- d) Testing facilities with the help of necessary field instruments/equipments (List of equipments available at site including level, theodolite etc. may be given)

4) Observations on quality of work after intensive inspection. Enumerate the defects/drawbacks/deficiencies noticed in the work sub-head wise.

- 4.1 Earthwork
- 4.2 Concrete work
- 4.3 R.C.C work
- 4.4 Brickwork
- 4.5 Stonework
- 4.6 Steelwork
- 4.7 Flooring (including marble work, if any)
- 4.8 Roofing
- 4.9 Finishing
- 4.10 Misc.
- 4.11 Services etc.

**5. Quality & Testing of materials/products.**

- 5.1 Comment on –
  - 5.1.1 Testing facilities available with the Department at site.
  - 5.1.2 Testing facilities arranged with other Department/Institutions.
  - 5.1.3 Testing facilities further required to be arranged.
  - 5.1.4 Is material/product of make borne on approved list of Department/BIS.
  - 5.1.5 Are tests carried out on materials/products found satisfactory? If not, intimate results to CGM©/GM©/SO© for re-consideration of approval.

**Testing:-**

- 5.2.1 Are all mandatory tests being carried out at the frequency mentioned in the agreement/specifications?
- 5.2.2 No. of tests failed and approx. quantity rejected.
- 5.2.3 General observations on tests, viz. erratic results, consistently low or high results etc.
- 5.2.4 Follow up action taken on unsatisfactory results, with lapses in prompt follow-up action.
- 5.2.5 Samples tested by Engr.©/EE©/Incharge of work and their results. (Sample should invariably be taken where material/product does not appear to conform to the latest results).

**6. Comments on adequacy of resources employed by the contractor at site for timely completion of work.**

**GUIDELINES FOR TECHNICAL AUDIT OF CIVIL ENGG. WORKS.****1. General details of work:**

- 1.1 A/A, & E/S, amount for the work and corresponding provision available for this work in the sanction.
- 1.2 Amount of detailed estimate.
- 1.3 Item rate/percentage rate/turnkey Tender.
- 1.4 No. of tenders received and tendered amount (Call of tender)
- 1.5 Authority accepting the tender.
- 1.6 Justification for tender; has proper evaluation been carried out of the conditions, if any, given by the tenderers, while accepting the tender?
- 1.7 Is the detailed estimate technically sanctioned on the basis of complete set of architectural and structural drawings.

**2. Deviation from plan, drawings:**

- 2.1 Deviations, if any.
- 2.2 Reason thereof, financial implications and sanction of competent authority.

**3. Deviation in quantities of items – Including Abnormally high/low rate items.**

- 3.1. Reasons for deviations.
- 3.2 Sanction of competent authority for the deviation.

**4. Extra & substituted items –**

- 4.1 Amount of items sanctioned so far.
- 4.2 Justification of items (proper or not)
- 4.3 Derivation of rates (proper or not)
- 4.4 Sanction of competent authority.
- 4.5 Any minus extra items paid? Details thereof with reasons.

**5. Issue of materials:**

- 5.1 Theoretical consumption commensurate with work executed and quantity lying at site?
- 5.2 Check recovery made from the last running bill/final bill and short recovery made, if any.
- 5.3 Any material not stipulated issued.
  - 5.3.1 Sanction/approval of competent authority for such issue.
  - 5.3.2 Approval of rate under three rate formula.
- 5.4 Machinery issued to contractor if any
  - 5.4.1 Details of recovery made for hire charges.
  - 5.4.2 Is recovery made commensurate with calculation of no. of hours/days for which recovery should have been made.



**6. Payment to contractor –**

- 6.1 Amount of last bill paid to the contractor.
- 6.2 Normal frequency of payment.
- 6.3 Test check of measurements by Engr.©/EE©/Sr.EE© or any other officers as per norms.
- 6.4 Part rates paid, justification for the same
- 6.5 Advances to contractor
- 6.6.1 Reasonableness of secured advances w.r.t. materials lying at site
- 6.6.2 Reasonableness of advance for unmeasured work.
- 6.6.3 Hypothecation documents safe custody of materials for which advances have been given.

..... COALFIELDS LIMITED  
OFFICE OF THE CGM©/GM©

**Notice Inviting Application for Registration of Contractors.**

..... Coalfields Limited invites applications from bonafide & experienced Contractor(s) for registration on satisfying the eligibility criteria mentioned hereunder and in the prescribed application form issued to him for different categories of work. The registration shall be valid for two years from the date of registration.

**TYPE OF WORK AND CATEGORY.**

The registration of contractors can be made for different types of works (depending on nature of work e.g. civil etc.) and category (depending on value of single contract) as mentioned hereunder:-

Category (Value-wise)	Eligibility to tender for	Value of at least one contract executed during any of the preceding five years.	Minimum total value of works executed during the past five years	Price of application form(s)(not refundable)
1	2	3	4	5
Category-A	Estimated value above Rs.20 crores.	Rs. 10 Crores and above	Rs.20 crores	Rs. 3000/-
Category-B	Estimated work value above Rs. 10 crores & upto 20 Crores.	Rs. 5 crores and above	Rs. 10 crores	Rs. 2000/-
Category-C	Estimated work value above Rs.5 crores & upto 10 crores.	Rs. 2.5 crores and above	Rs. 5 crores	Rs. 1500/-
Category-D	Estimated work value above Rs. 2 crores & upto 5 Crores.	Rs. 1 crore and above	Rs. 2 crores	Rs. 1000/-
Category-E	Estimated work value above Rs.50 lakhs & upto 2 crores	Rs. 25 lakhs and above	Rs. 50 lakhs	Rs. 750/-
Category-F	Estimated work value above Rs. 10 lakhs and upto 50 lakhs	Rs. 5 lakhs and above	Rs. 10 lakhs	Rs. 500/-
Category-G	Estimated work value upto Rs. 10 lakhs & below	Rs. 2 lakhs and above	Rs. 4 lakhs	Rs. 250/-
Category-H	Estimated work value Rs. 2 lakhs & below	For new entrants to contract work		Rs. 100/-

Sl.No.	Type of work for registration	Category for which registration is required
1)	<b>Civil Works:</b> Construction of residential/ non-residential/ service/ industrial buildings, office complex, Hospital Complex, Workshops, Store bldgs., Development works etc..	
2)	<b>Services:</b> Utilities including water supply, sewerage, sanitary, internal electrical works, roof water proofing, pest control, maintenance works etc.	
3)	<b>Civil Works:</b> Construction of roads, bridges, railway sidings, CHPs, washeries and other such civil engineering works	
4)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, construction, supply, erection, testing, trial & commissioning of Washeries	
5)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, construction, supply, erection, testing, trial & commissioning of Coal Handling Plant.	
6)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, construction, supply, erection, testing, trial & commissioning of Water Treatment Plants including Environmental Management Projects.	
7)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, construction, supply, erection of machinery/equipments & handing over after satisfactory performance test of major workshop/stores complex.	
8)	<b>Transportation Works:</b> Transportation of coal, sand, cement, steel and other materials etc.(separate form to be used for each type of work as above).	
9)	<b>Underground Works:</b> Shaft sinking, incline drivage & other underground civil engineering works.	

**Availability of Forms:**

The forms may be obtained on payment as prescribed above by cash, or by Bank Draft drawn in favour of ..... On any nationalized Bank payable at its branch ..... From the office of the ..... ( address ) from .....( date ) ..... to .....(date) during working days/hours.

**Instructions to Applicants:**

1) This registration is without prejudice to the company's right to publication of open general notices in News papers inviting tenders from time to time for individual work and to the company's general terms & conditions of contract. The registered contractors may obtain tender document for submission of tender on receipt of intimation of issue of tender notice (the company does not take responsibility for receipt of intimation of the tender notices by the registered contractors) or in response to the company's open general notice inviting tenders which shall be considered along with the other tenders received by the company.

2) The applicant should not apply for registration for more than one category (value-wise) for a particular type of work as detailed above. However, he may apply for more than one type of work of the same category for which separate application form will have to be obtained on payment of application fee. The company reserves the right to reject the application or to register an applicant at its sole discretion in a category lower than the category for which he has applied for registration.

3) The applicant shall furnish further documentary evidence, clarifications if required, by the company, in support of his eligibility.

4) The applicants who shall be registered by the company after scrutiny of the applications, will be informed of their registration in de course.

5). The company reserves the right to reject any application without assigning any reason whatsoever and the company's decision in the matter of registration shall be final.

6) Registration under a particular category does not guarantee automatic consideration of one's offer for a particular Tender; which will be decided on the basis of qualification criteria laid down in the NIT for that particular work.

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(Authority calling for registration)

**APPLICATION FORM FOR REGISTRATION OF CONTRACTORS.**

..... **COALFIELDS LIMITED.**  
**OFFICE OF THE CGM©/GM©.**

**Notice No.****Date:**

Category	Estimated value of work	Price of application Forms (Not refundable)
'A'	Estimated work value above Rs. 20 crores.	Rs. 3,000/-
'B'	Estimated work value above Rs. 10 crores & upto 20 crores.	Rs. 2,000/-
'C'	Estimated work value above Rs. 05 crores & upto 10 crores.	Rs. 1,500/-
'D'	Estimated work value above Rs. 02 crores & upto 05 crores.	Rs. 1,000/-
'E'	Estimated work value above Rs. 50 lakhs & upto 02 crores.	Rs. 750/-
'F'	Estimated work value above Rs. 10 lakhs & upto 250 lakhs.	Rs. 500/-
'G'	Estimated work value above Rs. 10 lakhs & below.	Rs. 250/-
'H'	Estimated work value above Rs. 02 lakhs & below.	Rs. 100/-

(Separate form to be filled in for each type of work under one category)

**Particulars to be furnished by the Applicant:**

- 1) Name and address (Regd, Office) of the applicant.
- 2) Date of commencement of the business:
- 3) Ownership Status:
  - i) Whether partnership (furnish copies of Deed)
  - ii) Whether company (furnish copies of Memorandum)
  - iii) Whether Government/Semi-Government Organisation/Public Sector Undertakings.

Sl.No.	Type of work for registration	Category for which registration is required/ applied
i)	<b>Civil Works:</b> Construction of residential/non-residential/ service bldgs./Industrial bldgs./Workshops,/ Store bldgs./Office Complex/Hospital Complex/ Development works etc..	
ii)	<b>Services:</b> Utilities including water supply, sewerage, sanitary, roof water proofing, pest control, maintenance works, internal electrical works etc.	
iii)	<b>Civil Works:</b> Construction of roads, bridges, railway sidings, CHPs, & coal washeries and other such civil engineering works	
iv)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, supply, erection, testing, trial & commissioning of Coal Washeries	
v)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, supply, erection, testing, trial & commissioning of Coal Handling Plants.	
vi)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, supply, erection, testing, trial & commissioning of Water Supply Treatment Plants & Environmental Management Projects.	

vii)	<b>Turnkey Contracts:</b> Planning, investigation, design, engineering, constructions, manufacture/supply, erection of machinery/equipments & handing over after satisfactory performance test of Store/workshop complex.	
viii)	<b>Transportation Works:</b> Transportation of coal, sand, cement, steel and other materials etc.	
ix)	<b>Underground Works:</b> Shaft sinking, incline drivage & other underground civil engineering works.	

(Note: Separate form is to be obtained for each type of work)

5. Details of Experience (with special reference to work done in CIL & its subsidiaries)

A. Details of works executed during past 5 ( five )years.

Sl. No.	Year	Name of work with work-order ref. & brief description	Value of work	Name of employer	Date of commencement of work	Date of completion of work	Reasons for delay, if any.

Attach attested copies of : 1) Work order, (2) Satisfactory completion certificate.

B. Details of works presently as hand

Sl. No.	Year	Name of work with work-order ref. & brief description	Value of work	Name of employer	Date of commencement of work	Date of completion of work	Reasons for delay, if any.

Attach attested copy of work order.

Notes: i) The work experience should relate to the type & category (value-wise) of the work for which registration is applied for.

ii) Minimum eligibility criteria should be fulfilled as per the note given hereafter.

Signature of Applicant.

The applicant shall have to fulfill the following criteria to be eligible for registration in the category of works applied for :

Category (Value-wise)	Value of at least one contract executed during any of the preceding five years	Minimum total value of work executed during the past 5 years.
Category 'A'	Rs. 10 Crores & above.	Rs. 20 Crores.
Category 'B'	Rs. 05 Crores & above.	Rs. 10 Crores.
Category 'C'	Rs. 2.5 Crores & above.	Rs. 05 Crores.
Category 'D'	Rs. 1 Crore & above.	Rs. 02 Crores.
Category 'E'	Rs. 25 lakhs & above.	Rs. 50 lakhs.
Category 'F'	Rs. 05 lakhs & above.	Rs. 10 lakhs.
Category 'G'	Rs. 02 lakhs & above.	Rs. 04 lakhs.
Category 'H'	For new entrants to contract work.	

(Unemployed Engineers may be registered directly in Category-H)

6	Financial Resources	Particulars.
	<p>The applicants should provide documentary evidence to prove availability of adequate financial resources to execute contracts of the relevant category (value-wise) for which registration is applied for:-</p> <p>a) Attested copy of audited balance sheet of last 5 years.</p> <p>b) Any Nationalised Bank's reference/certificate for satisfactory conduct of accounts indicating volume of transactions, assets owned etc.</p> <p>c) Income tax clearance certificate for the last five(5) years or any other evidence of being a bonafide tax payer (copy attested by a Gazetted Officer to be attached)</p>	

7	Technical Resources	Particulars.
	<p>a) List of technical personnel available with the applicant with their qualifications</p> <p>b) List of plant &amp; machinery/equipment etc. available with the applicant as required for the type of work for which registration is applied.</p> <p>c) Details of collaboration agreements for foreign technology/knowhow, if any.</p> <p>d) Details of machines/equipments supplied to different parties with documentary evidence in support of satisfactory performance of the equipments e.g. machinery/equipments required for construction of washery, coal handling plant, water supply/treatment plant, workshop etc.</p>	

8	<p>a) Whether any relative of the owner/applicant or any of the partners of the applicant firm is related to any of the officers employed in Coal India or any of its subsidiaries. If so furnish name of the applicant/owner/partner and the name, designation and place of posting of the officer employed in CIL and its subsidiaries companies.</p> <p>b) Whether any relatives of the owner/applicant or any of the partners of the applicant firm are active trade union leaders of CIL &amp; its subsidiary company's. If so mention the name of the applicant/owner/partner and the trade union leader &amp; field of the operation/activities.</p>	
9	<p><b>Other Details:</b></p> <p>a) Details of registration/enlistment with Government/semi-Government/Public Sector Organisations currently valid, if any.</p> <p>b) Certificate of Registration is per Statutory requirement under Registrar of firms &amp; Contract Labour Laws as may be applicable.</p> <p>c) Name of Bankers.</p> <p>d) Any other particulars as may be relevant.</p>	

( Signature of Applicant )

**Notes:**

- 1) Separate sheets may be attached furnishing details indicating the relevant item number in the application form, if necessary.
- 2) The Notice inviting application for registration in response to which this application is submitted, is without prejudice to the company's right to the publication of open notice from time to time for individual work and to the general terms and conditions of contract as applicable thereon.
- 3) Each application should be submitted in a separate closed cover indicating name & address of the applicant at the LEFT SIDE bottom superscribing.



**‘APPLICATION FOR REGISTRATION OF CONTRACTORS’**

Type of Work :

Item No. :

Category :

**(A,B,C,D,E,F,G,H)****Address of - The authority calling for registration.**

4. Erasing/over-writing, if any, may disqualify the applicant. Corrections, where necessary shall be made by crossing out and re-written & attested with full signature & date.
5. Application should be properly filled-up in English/Hindi & submitted as per instruction. Otherwise this is liable for rejection.
6. Applicant should not apply for more than one category for a particular type of work. Separate application forms should be used for different type of work of the same category.
7. Application for registration should be submitted for the category(ies) required as specified in the Notice inviting application and as per instruction contained.
8. Canvassing in any form is prohibited and applications submitted by the applicants who report to canvassing shall be disqualified.

**PERFORMANCE REPORT OF CONTRACTORS.**

**Period of report: ..... To .....**

**PART – I.**

- |               |  |
|---------------|--|
| 1. Contractor | <ul style="list-style-type: none"> <li>a) Name</li> <li>b) Address</li> <li>c) Details of Registration (Category and Type)</li> </ul>  |
| 2. Work       | <ul style="list-style-type: none"> <li>a) Name</li> <li>b) Agreement amount</li> <li>c) Date of Commencement</li> <li>d) Date of Completion</li> <li>e) Progress till report.</li> </ul> |

**PART-II** Sr.EE©/EE©'s Assessment.

- 1) Quality of Work (Very Good, Good, Average, Poor, Very Poor)
  - a) Materials used.
  - b) Structural Work
  - c) Finish
  - d) Speed of execution.
- 2) Sub-standard/defective work executed (Yes/No, if yes, approx. value below)
  - a) Defective work rejected.
  - b) Sub-standard work accepted at reduced rates.
- 3) Was Work delayed? (Yes/No, If yes.....)
  - a) Were reasons beyond control of contractor?
  - b) Was delay due to lack of contractor's resources or lack of adequate efforts by contractor.
- 4) Behaviour of Contractor.
- 5) Is contractor financially sound? (yes/No.)
- 6) Is contractor litigious ? (Does he habitually prefer boosted up claims for arbitration?)
- 7) Overall performance of contractor (Very Good, good, Average, Poor, Very Poor)

**( Sr. EE©/EE©.)**

**PART-III Staff Officer©/Dy.G.M.©'s Remarks.**

- 1) Does SO©/Dy.G.M.© agree with Sr.EE©/EE©'s report and assessment?  
(Yes/No. Specify points of disagreement, if any).
- 2) SO©/Dy.GM©'s overall assessment of contractor  
(Very good, Good, Average, Poor, Very poor)
- 3) Does SO©/Dy.GM© recommend any disciplinary action against the contractor?  
(Warning, Demotion, suspension of business for a specific period, removal from list).

**S.O©./Dy.GM©.**

**PART-IV. CGM©/GM©'s Remarks:**

**(CGM©/GM©.)**

**SPECIMEN LETTER GRANTING EXTENSION OF TIME.**

To

.....  
.....

(Name and Address of the Contractor)

SUB:

Contract Agreement/Work Order No..... Dt.....

Dear Sir,

Please refer to your letter No..... dt..... in connection with grant of extension of time of completion for the work.....

The scheduled date of completion of the above mentioned work is ..... As stipulated in the Agreement/Work Order No..... dt.....

Extension of time of completion for the above mentioned work is granted upto ..... without prejudice to the rights of ..... (name of the company) as provided in the above contract agreement including right to recover Compensation for delay as per Cl..... of the agreement.

Notwithstanding extension of time granted herein above all the terms and conditions of the contract/agreement of ..... including the term time of completion of work which is essence of the contract shall remain unaltered.

Yours faithfully,,

**PROFORMA FOR INTIMATING THE CONTRACTOR  
REGARDING LEVY OF COMPENSATION.**

To

.....  
.....

(Name & address of the Contractor)

SUB: Contract No..... dated.....

Dear Sir,

In terms of the above Contract the date of completion of the above work was ..... but on your application the time of completion of the above work was extended upto ..... without prejudice to the rights of the company to recover compensation for delay.

In accordance with the provisions of the said Contract it is determined that you are liable to pay Rs..... (In words ..... ) as and by way of compensation for delay in completion of the work.

The above compensation is levied for a period of ..... and at the rate of Rs..... on the estimated cost of work under the Contract and you are hereby called upon to pay a sum of Rs..... to the company within ..... Failing which the aforesaid amount will be recovered set off by the Company from the security deposit lying with the company.

Yours faithfully,

**SPECIMEN OF LETTER BY THE ENGINEER-IN-CHARGE TO CONTRACTOR  
FOR PROVISIONAL REDUCTION IN RATE FOR SUBSTANDARD WORK.**

**REGISTERED POST/A.D.**

No.

date.....

To

M/S.....  
.....

Dear Sir(s),

Subject: (Complete name of work) ..... Agreement No .....

1) The..... (Name of the Company) considers that the items of work (specified in the statement appended herewith ) relating to the work of ..... undertaken by you in terms of the above agreement have not been executed in accordance with the prescribed specifications and/ or in a workman like manner and, therefore, cannot be accepted in terms of the above said agreement for payment at the rates specified in the agreement.

2) The ..... (Name of the Company) is willing to consider acceptance of the same should you agree to receive payment at rates suitably reduced taking in consideration of substandard nature of the said items of work. The Area Engineer of this work will determine as to what suitable reductions in the rates should be made from the agreed rates for the said items. His decision shall be final. Pending such decision of the Area Engineer, however, the payment for the said items of work will be made at the provisional rates indicated against each item.

3) If you agree to the aforesaid conditions for acceptance of payment for the said items of work, you may please return the enclosed form duly executed by you.

4) If no reply is received from you within three weeks of the date of issue of the letter, it shall be presumed that the offer is not acceptable to you. In the said event, the offer shall stand withdrawn without prejudice to the rights and remedies of the ..... (Name of the Company) in terms of the contract.

Encl: Proforma for Acceptance ( Appdx.22 )

Yours faithfully,

Engineer-in-Charge  
For and on behalf of  
(Name of the Company)

**SPECIMEN OF LETTER OF CONTRACTOR'S ACCEPTANCE OF PROVISIONAL  
REDUCTION OF RATE FOR SUBSTANDARD WORK.**

**No.**

**Date:**

To

.....  
.....

Sir,

**Subject: (Complete name of work)**\_\_\_\_\_

**Reference: Your letter No.**.....

I/We have carefully read the terms and conditions offered in your letter dated..... and they are acceptable to me/us.

Pending the decision of the Area Engineer of the final rates of payment against the items of work specified in the statement attached to your above letter which will be final and binding,. I/We agree to the same being paid at the provisional rates indicated against each of the said item of work for the above work as mentioned in your statement.

Yours faithfully,

Contractor(s).

**APPENDIX-23**  
Ref. Cl.8.08 Part I and Cl. 8  
Part II )

**NOTICE FOR RECTIFICATION OF DEFECTS.**

**REGISTERED POST/A.D.**

**No.**

**Date:**

To  
M/s./Shri.....  
Address of the Contractor  
.....  
.....

Subject:..... (Complete Name of the Work)  
Agreement No. & Date.....

Dear Sir(s),

1) WHEREAS the above work has been awarded to you under the subject contract and the same is in progress/the same has been completed.

2) whereas the items of works as detailed in schedule attached herewith have been executed with unsound, imperfect and unskillful workmanship with materials of inferior description and that materials and/ or articles provided for the execution of the work are unsound and of a quality inferior to that contracted for.

3) WHEREAS the material and/or articles provided by you for execution of the work as detailed in the schedule hereto are unsound and of quality inferior to that contracted for.

4) NOW you are hereby called upon to rectify or remove and reconstruct forthwith each item of work as detailed in the said schedule of work in whole or in part as the case may require with sound, perfect and the skilful workmanship and/or with materials and articles of sound and proper quality as per contract at your own cost and charge.

5) I .....Engineer-in-Charge in exercise of the powers conferred on me by the aforesaid agreement, for and on behalf of the ..... *(Name of the Company)* hereby give you Notice to remove the cause set out above within ..... Days to my satisfaction failing which action will be taken against you under the relevant Clause of the Agreement.

Encl: On Schedule

Yours faithfully,

Engineer-in-Charge  
Area ..... for and on behalf of the  
(Name of the Company)



**PROFORMA HYPOTHEICATION DEED FOR LOAN  
AGAINST THE PLANT & EQUIPMENT.**

The indenture made this ..... day of ..... 19..... between M/S..... having its registered Office at ..... (hereinafter called “the Contract” which expression shall unless repugnant to the context be deemed to its successors and assigns) of the ONE PART and Coal India Limited/Subsidiary Company having its Registered Office at ..... (hereinafter called “the Company” which expression shall unless repugnant to the context be deemed to its successors and assigns) of the OTHER PART.

WHEREAS the Contractor has applied to the Company for a loan of Rs..... only for plant and equipment described in the Schedule hereto for the work and brought to site in accordance with the terms and conditions of the Contract being No..... dated ..... entered into between the Contractor and the Company for the work of .....

AND WHEREAS one of the conditions of the said Contract that the Contractor will hypothecate the said plant and equipment as a security for due repayment of the amount lent by the Company.

AND WHEREAS the Contractor has purchased the said plant and equipment described in the Schedule hereto and the same are free from all encumbrances.

NOW THIS INDENTURE witnessed that in pursuance of the said agreement and in consideration of the premises the Contractor doth hereby agree to repay to the Company the said sum of Rs..... lent by the Company with interest thereon at the rate of .....percentage per annum and the Contractor doth agree by that such repayable amount may be recovered by the Company my making deductions in the manner as provided in the contract from the claims made by the Contractor against the Company for on account payment and in further pursuance of this agreement the Contractor doth hereby assign and hypothecate the plant and equipment as described in the Schedule hereto.

The Contractor doth hereby declare that the said plant and machinery have been purchased by the Contractor outright and the Contractor is the absolute owner of the said plant and equipment and the same have not been pledged or pawned anywhere else and shall not be pledged or pawned or hypothecated it so long as the money remains due to the Company.

The Contractor further agrees that if the said loan of Rs..... is not repaid by the Contractor or recovered in the manner described above by the ..... of 19..... Due to any reason whatsoever or the Contractor dealing with the said plant and equipment or any part thereof in any manner whatsoever or the Contractor becomes insolvent or bankrupt or the Contractor is to be wound up or make any with its creditors or the Contractor commits breach of any of the terms and conditions or covenants herein contained or if any of the said plant and equipment or any other property whatsoever belonging to the Contractor has been sold or attached for a period not less than 21 days in execution of decree of any court for payment of money or the whole of sum of Rs..... or said part thereof as may then remain or unrecoverable together with interest thereon shall forthwith become payable and the Company shall be entitled to recover the said sum from the Contractor or from his successor and assigns and it is further agreed that in the event of happening of any of the aforesaid circumstances the Company shall be entitled to take possession of the said plant and equipment and sell the said plant and equipment or any of them either by op public auction or private contract any may out of the sale proceeds retain the balance of the said loan and interest thereon remaining unpaid and unrecovered and all costs, charges and expenses and payments incurred or made in maintaining defending or protecting the rights of the Company hereunder and shall pay over the surplus, if any, to the contractor.

The Company shall at all times during the continuance of security and at the expenses of the Contractor ensured and keep ensured the plant and equipment described in the Schedule hereto for the full value thereof in the joint names of the Contractor and the Company with an Insurance Company to be approved by the Company against the risk of loss or damage from whatever cause arising other than excepted risk. During the continuance of the security the Contractor shall pay all premium and sums of money necessary for keeping such insurance valid and the Insurance Policy and the receipt in original for premium paid shall be deposited with the Company by the Contractor. The Contractor shall assign all its rights, title and interest in the policy to the Company.

The Contractor shall not in any way cause any damage or suffer or permit the said plant and equipment to be damaged in any way so long as this security is not completely discharged and in the event of any damage or loss happening to the said plant and equipment or any part thereof from whatever cause other than the excepted risk. The Contractor shall forthwith have the sum prepared or replaced as the case may be or arrange for repayment of the entire amount recovered or to be recovered from the Insurance Company towards the repayment of the said loan of Rs.....

Upon repayment or recovery in full of the amount secured under this Indenture the said plant and equipment secured hereunder shall stand released from Hypothecation but without prejudice to any other rights of the /Company in terms of the provisions of the said contract.

**SCHEDULE ABOVE REFERRED TO.**

In witness whereof the parties hereto have been these presents on the date and year first above written.

Signed and delivered by

Signed by for and on behalf and  
On behalf of the Contractor

of CIL/Subsidiary Company

In the presence of : 1)

1 )

In the presence of : 2 )

2 )

**PROFORMA OF BANK GUARANTEE FOR REMOVAL OF PLANT & EQUIPMENT  
FROM THE SITE OF COAL INDIA LIMITED/SUBSIDIARY COMPANY.**

In consideration of Coal India Limited/Subsidiary Company (hereinafter called "The Company" which expression shall unless repugnant to the subject or context includes its successors and assigns) having agreed to under the terms and conditions of the Contract No..... dated..... Entered into between the Company and M/s.....having its Office at ..... (hereinafter called "the Contractor") to permit the Contractor to remove the plant and equipment as fully described in the Schedule of the Hypothecation Deed dated ..... Executed by the Contractor in favour of the Company from the site to any other works of the Contractor on its furnishing the Bank Guarantee for Rs..... we, the ..... Bank (hereinafter referred to as the said Bank) having its Registered Office at ..... do hereby undertake and agree to pay the Company to the extent of Rs..... on demand stating that the amount claimed by the Company is due and payable by the Contractor for its failure in bringing back the said plant and equipment or any part thereof to the site and to unconditionally pay the amount claimed by the company on such demand without any demur to the extent aforesaid.

We, the ..... Bank agree that the Company shall be the sole judge as to whether the said Contractor has failed/neglected in bringing back the plant & equipment to the site and the amount has become due for such failure and the decision of the company inn this behalf shall be final and binding on us.

We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect upto ..... and any claim received after the said date shall in no case be bind the Bank.

Notwithstanding anything contained herein the liabilities of the said Bank under this Guarantee are restricted to Rs..... and this Guarantee shall come into force from the date hereof and shall remain in full force and effect till ..... unless the written demand or claim under this Guarantee is made by the Company with us on or before ..... all the rights of the Company under this guarantee shall cease to have any effect and we shall be relieved and discharged our liabilities hereunder.

We, the said Bank lastly undertake not to revoke this Guarantee under its currency except with the previous consent of the Company in writing and agree that any change in the constitution of the said Contract or the said Bank shall not discharge the liabilities hereunder.

This Guarantee is issued by Sri..... Who is authorized by the Bank.

Under jurisdiction of ..... court only.

**PROFORMA OF BANK GUARANTEE IN LIEU OF SECURITY DEPOSIT.**

M/s. Coal India Limited  
10, Netaji Subhas Road,  
Calcutta

Or

.....  
(Name of the Subsidiary Company with address).

Dear Sir,

In consideration of M/s. Coal India Limited/Subsidiary Company having its Registered Office at ..... (hereinafter called "the Company" which expression shall unless repugnant to the subject or context includes its successors and assigns) having agreed under the terms and conditions contained in letter No..... dated..... Issued in favour of M/s..... for ..... (hereinafter referred to as "the Contract" to accept the Deed of Guarantee as herein provided for rs..... from the Schedule/Nationalised Bank in lieu of security deposit to be made by M/s..... (hereinafter called "the contractor") or in lieu of deduction to be made from the contractors' bill, for the due fulfillment of the terms and conditions contained in the said contract by the contractor, we the ..... we, the ..... Bank (hereinafter referred to as the said Bank) having its Registered Office at ..... do hereby undertake and agree to pay the Company to the extent of Rs..... on demand stating that the amount claimed by the Company is due and payable by the Contractor for the reasons of failure/negligence in performing the terms and conditions contained in the contract by the buyer and to unconditionally pay the amount claimed by the company on demand without any demur to the extent aforesaid.

2) We, the ..... Bank agree that the Company shall be the sole judge as to whether the said Contractor has failed/neglected in performing any of the terms and conditions of the said contract and the decision of the company in this behalf shall be final and binding on us.

3) We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect upto ..... and any claim received after the said date shall in no case be bind the Bank.

4) The Company shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee or indemnity from time to time vary any of the terms and conditions of the said contract or to extend the time of performance by the said contractor or to postpone any time and from

time to time any of the powers exercisable by it against the said contractor and either to enforce or to forbear from enforcing any of the terms and conditions governing the said contract or securities available to the company and the said Bank shall not be released from its liability under these presents.

5. Notwithstanding anything contained herein the liability of the said Bank under this Guarantee is restricted to Rs..... and this Guarantee shall come into force from the date hereof and shall remain in full force and effect till ..... unless the written demand or claim under this Guarantee is made by the Company with us on or before ..... all the rights of the Company under this guarantee shall cease to have any effect and we shall be relieved and discharged our liabilities hereunder.

6. We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the company in writing and agree that any change in the constitution of the said contractor or the said Bank shall not discharge our liability hereunder.

7. This guarantee issued by Sri..... who is authorized by the Bank.

Under jurisdiction of ..... court only.

**PROFORMA OF BANK GUARANTEE FOR PERFORMANCE**

To

.....  
.....

Re: Bank guarantee in respect of contract No.....

Dated..... between ..... (name of the .....)

And .....(name of the contractor)

M/s. .... (Name and address of the Contractor) (hereinafter called “the Contractor”) has entered into a Contract dated ..... (hereinafter called the said Contract) with M/s..... (name of the Company) (hereinafter called “the Company”) to execute ..... (name of the contract and brief description of work) on the terms and conditions contained in the said contract.

It has been agreed that the Contractor shall furnish the Bank guarantee from a Nationalised Bank for a sum of Rs..... as security for due compliance and performance of the terms and conditions of the said contract.

The ..... (name of the Bank) having its Office at ..... has at the request of the Contractor agreed to give the Guarantor hereinafter contained.

We, the ..... Bank (hereinafter called “the Bank”) do hereby unconditionally agreed with the Company that if the contractor shall in any way fail to observe or perform the terms and conditions of the said contract or shall commit any breach of its obligation thereunder the Bank shall on demand and without any objection or demur to pay to the Company the said sum of Rs..... or such portion as shall then remain due with interest without requiring the Company to have recourse to any legal remedy that may be available to it to compel the Bank to pay the sum, or failing on the company to compel such payment by the contractor.

Any such demand shall be conclusive as regards the liability of the Contractor to the Company and as regards the amount payable by the Bank under this guarantee. The Bank shall not be entitled to withhold payment on the ground that the Contractor has disputed its liability to pay or has disputed



the quantum of the amount or that any arbitration proceeding or legal proceeding is pending between the Company and the Contractor regarding the claim.

We, the ..... Bank further agree that the Guarantee shall come into force from the date hereof and shall remain in force and effect till the period that will be taken for the performance of the said Contract which is likely to be ..... day of ..... but if the period of Contract is extended either pursuant to the provisions in the said Contract or by mutual agreement between the contractor and the company the Bank shall renew the period of the Bank Guarantee failing which it shall pay to the company the said sum of Rs..... or such lesser amount of the said sum of Rs..... as may be due to the company and as the company may demand.

This Guarantee shall remain in force until the dues of the company in respect of the said sum of Rs..... and interest are fully satisfied and the Company certifies that the Contract has been fully carried out by the Contractor and discharged the guarantee.

The Bank further agrees with the company that the company shall have the fullest liberty without consent of the Bank and without affecting in any way the obligations hereunder to vary any of the terms and conditions of the said contract or to extend time for performance of the said contract from time to time or to postpone for any time or from time to time any of the powers exercisable by the Company against the contractor and to forebear to enforce any of the terms & conditions relating to the said Contract and the Bank shall not be relieved from its liability by reason of such failure or extension being granted to the Contractor or to any forbearance, act or omissions on the part of the company or any indulgence by the Company to the Contractor or any other matter or thing whatsoever which under the law relating to sureties would but for this provision have the effect or relieving or discharging the Guarantor.

The Bank further agrees that in case this Guarantee is required for a longer period and it is not extended by the Bank beyond the period specified above the Bank shall pay to the company the said sum of Rs..... or such lesser sum as may then be deemed to the Company and as the Company may require.

Notwithstanding anything contained herein the liability of the Bank under this Guarantee is restricted to Rs..... the Guarantee shall remain in force till the day ..... of ..... and unless the Guarantee is renewed or claim is preferred against the Bank within six months from the said date all rights of the Company under this Guarantee shall cease and the Bank shall be relieved and discharged from all liabilities hereunder except as provided in the preceding Clause.

This Guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor.

The Bank has under its constitution power to give this guarantee and Shri ..... who has signed it on behalf of the Bank has authority to do so.

Dated, this ..... day of .....19

Signature of the authorized person.

For and on behalf of the Bank

Place:

Under jurisdiction of ..... Court only.

**APPENDIX-28**

( Ref. Cl.1 Additional Terms and Conditions Part II )

**PROFORMA OF BANK GUARANTEE FOR  
MOBILISATION/ LUMP-SUM ADVANCE.**

M/s. Coal India Limited  
10, Netaji Subhas Road,  
Calcutta

Or

.....  
(Name of the Subsidiary Company with address).

Dear Sir,

In consideration of Coal India Limited/Subsidiary Company having its Registered Office at ..... (hereinafter called “the Company” which expression shall unless repugnant to the subject or context includes its successors and assigns) having agreed under the terms and conditions of the Contract No..... dated..... Entered into between Coal India Limited/Subsidiary Company and M/s having its Registered Office at ..... (hereinafter called “the Contractor” to make mobilisation advance/lump-sum advance to the tune of Rs..... subject to submission of the Bank Guarantee for equal amount from any Nationalised Bank , We ..... Bank (hereinafter referred to as the said Bank) having its Registered Office at ..... do hereby undertake and agree to pay the Company to the extent of Rs..... on demand stating that the amount claimed by the Company is due and payable by the contractor for the reasons of non-refund and or non-recovery of the amount with interest thereon and to unconditionally pay the amount claimed by the company on such demand without any demur to the extent aforesaid.

2. We, ..... Bank agree that the Company shall be the sole judge as to whether the said Contractor has failed/neglected in refunding the amount advanced by the Company and/or extent of loss and damages caused to or suffered by the Company on account of the amount advanced not being recovered in full and non-utilisation of the said advanced amount or part thereof for the purpose of performance of the contract and interest payable thereon and the decision of the company in this behalf shall be final and binding on us.

3) We, the said Bank further agree that the Guarantee herein contained shall remain in full force and effect upto ..... and any claim received after the said date shall in no case bind the Bank.

4) The Company shall have the fullest liberty without affecting in any way the liability of the Bank under this guarantee or indemnity from time to time vary any of the terms and conditions of the said contract or to extend the time of performance by the said contractor or to postpone any time and from time to time any of the powers exercisable by it against the said contractor and either to enforce or to forbear from enforcing any of the terms and conditions governing the said contract or securities available to the company and the said Bank shall not be released from its liability under these presents.

5. Notwithstanding anything contained herein the liability of the said Bank under this Guarantee is restricted to Rs..... and this Guarantee shall come into force from the date hereof and shall remain in full force and effect till ..... unless the written demand or claim under this Guarantee is made by the Company with us on or before ..... all rights of the Company under this Guarantee shall cease to have any effect and we shall be relieved and discharged our liabilities hereunder.

6. We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the company in writing and agree that any change in the constitution of the said contractor or the said Bank shall not discharge our liability hereunder.

7. This guarantee issued by Sri..... who is authorized by the Bank.

Under jurisdiction of ..... court only.

**APPENDIX-29**

( Ref. Cl. 4.06 )

**PROFORMA OF BANK GUARANTEE IN LIEU OF EARNEST MONEY.**

M/s. Coal India Limited  
10, Netaji Subhas Road,  
Calcutta

Or

.....  
(Name of the Subsidiary Company with address).

Dear Sir,

In consideration of The.....having its Registered Office at ..... (hereinafter called “the Company” which expression shall unless repugnant to the subject or context includes its successors and assigns) having agreed to exempt M/s..... having its Registered Office at ..... (hereinafter called “the said tenderers” which expression shall unless repugnant to the subject or context includes its successors and assigns) from the demand under the terms and conditions of Tender No..... for ..... (hereinafter called “the said Tender”) of each earnest money for the due fulfillment of the terms and conditions contained in the said Tender by the said Tenderer on production of Bank guarantee for Rs.....). We ..... Bank (hereinafter referred to as “the Bank”) do hereby undertake to pay to the company an amount not exceeding Rs.....on demand by the company for the reason of any breach by the Tenderer of any of the terms and conditions contained in the said Tender. The decision of the company as to any such breach having been committed by the Tenderer shall be final and binding on us.

2) We, ..... Bank do hereby undertake to pay an amount due and payable under this guarantee without any demur merely on a demand from the company stating that the amount claimed is due from the tenderer for the reason of breach by the said tenderer of any of the terms and conditions contained in the said Tender or for the reason of the Tenderer failing to keep the Tender open. Any such demand made on the Bank shall be conclusive. As regard the amount due and payable by the Bank under this Guarantee shall be restricted to an amount not exceeding Rs.....

3)We, the said Bank further agree that the Guarantee herein contained shall come into force from the date hereof and shall remain in full force and effect till a demand or claim under this Guarantee is

made on us in writing on or before the ..... We shall discharge from all liability under this Guarantee thereafter..

4) We, the said Bank lastly undertake not to revoke this Guarantee during its currency except with the previous consent of the company in writing and agree that any change in the constitution of the said Tenderer or the Bank shall not discharge our liability hereunder.

5. This guarantee is issued by Sri ..... who is authorized by the Bank.

Under jurisdiction of ..... court only.

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