



GOVERNMENT OF MAHARASHTRA
RURAL DEVELOPMENT DEPARTMENT

ZILLA PARISHAD SOLAPUR

EXECUTIVE ENGINEER, M. I.(L.S.) DIVISION NO.1

ZILLA PARISHAD SOLAPUR

TENDER DOCUMENTS
FOR

@ -----

Tal. ----- , Dist. **Solapur**

B-1 FORM (Percentage Rate)**TENDER PAPERS FOR**

NAME OF WORK: - @ -----

-----**Tal. -----, Dist. Solapur.**

- 1) **NAME OF CONTRACTOR** : **Shri. / M/s.:**
- 2) **LAST DATE SUBMISSION OF TENDER** : **Up to 18.00 Hours**
- 3) **DATE OF OPENING OF TENDER** : **at 16.00 Hours**
(If possible)
- 4) **COST OF TENDER FORM** : **Rs. /- Received.**
Vide D. R. No. :
Date :-
- 5) **NAME OF TENDER ACCEPTING AUTHORITY** -**Additional Chief Executive Officer**
Zilla Parishad, Solapur .
- 6) **AMOUNT OF CONTRACT** : **Rs.**
_____ % below / above.
- 7) **DATE OF WORK ORDER** : **/ /**
Vide T.O. No. _____ / AB / TC.
Date :
- 8) **PERIOD FOR COMPLETION** : **----- Calendar months**
(Including mansoon)
- 9) **AGREEMENT NO.** : **B – 1/ _____ , FOR 2017 – 18**
- 10) **EXTENSION OF TIME LIMIT, IF ANY** :

INDEX

Signature of contractor

No. of corrections

Executive Engineer

Name of work:

@ -----

-----Tal. -----, Dist. Solapur.

Sr. No.	Contents	Page Number	
		From	To
1	Tender Notice	4	4
2	Detailed Tender Notice	5	5
3	Guidelines to contractor	6	13
4	Special Conditions of the Contract	13	28
5	Appendices	29	29
	A) Details of the work of similar type & magnitude carried by the Tenderer	30	30
	B) Details of the work tendered for & works in hand as on the date submission of the Tender	31	31
	C) Details of plant & machinery immediately available with the tenderer for use on this work	32	32
	D) Details of Technical Personal with the Tenderer	33	33
	E) Declaration of the Contractor	34	34
6	B-1 Tender Form	35	60
7	Schedule- A	61	61
8	Schedule- B	62	62
9	Construction Program	63	63
10	Index to General Specification	64	64
11	General Specification	65	108

Note: - The Contractors is advised to verify the documents mentioned in the Index & to sign the Index in token of such verification.

Issued to

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Vide D.R. No. : Dated

Assistant Accounts Officer,
Minor Irrigation (Local Sector)
Div No.1 Z.P.Solapur

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PART - II

1. GUIDELINES TO CONTRACTORS ON THE OPERATIONS OF ELECTRONIC

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No. of corrections

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TENDERING SYSTEM.

1.1 Guidelines to contractors for the operation of Electronic Tendering System are available on website “ <http://www.mahatenders.gov.in>” . Contractor should download the guidelines & follow all the instructions . Dept is not Responsible for any wrong method adopted or any technical error .If there are any technical discrepancy it should be brought in notice to dept in writing.

2. INSTRUCTIONS AND NOTES FOR THE GUIDANCE OF TENDERERS

2.1 The Tenderers shall be presumed to have carefully examined all documents, forms, statements, special conditions, schedules, drawings, general conditions and specifications of the contract and to have fully acquainted themselves with all the details of site, labour conditions and in general with all necessary information and data etc. pertaining to and needed till completion of the work.

2.2 The Tenderers should see in particular the quarry / borrow sites and satisfy themselves about the quality and quantities of the materials available as the rates quoted will be inclusive of all leads and lifts involved in bringing the materials from the quarry / borrow areas. All necessary testing of materials shall be carried out by the Contractor at his own cost to confirm their suitability before the materials will be permitted to be used.

3. ROYALTIES

3.1 All quarry fees, royalties, octroi duties and ground rent for stacking materials, if any, shall be paid by the Contractor. (As per PWD GR No. Misc /02/05 / (290)

Building-2, Mantralaya Mumbai-400032 Dated : 11/9/2003). महसुल व वन

विभागाकडील दि.11 मे 2015 चे शासन राजपत्रानुसार सुधारित स्वामीत्व शुल्क रु.400/-

प्री ब्रास प्रमाणे (खोदकामातून उपलब्ध होणारे साहीत्य व त्याच तलावाचे Submergance

Area मधून खोदून साहीत्य त्याच तलावाचे कामासाठी वापरणेत येत असेल तर स्वामीत्व शुल्क

निरंक राहिल)

3.2 The amount of royalty included in the item of schedule 'B' of the tender will be deducted from the R. A. Bill of the contractor & will be released to the Contractor to the extent of actual amount of royalty paid on submission of the Receipt from the Revenue and Forest Department or else the deducted amount will be paid directly to revenue authority.

4. PREFERENCE -

Preference will be given to those Contractors who have previous experience of such type of large works and who have the necessary machinery with them & to the prospective tenderer who qualify through the prequalification evaluation.

5. TIME LIMIT

The work is to be completed within ----- (----) calendar months including the monsoon, from the date of written Work Order to commence the work.

6. CONDITIONAL TENDERS

i) Conditional Tenders will not be considered for acceptance.

ii) The Tenderers are requested to read carefully all the instructions mentioned in para-15 while submitting their Tenders in e-tendering system. They should also be very

careful regarding the documents to be submitted. Non observance of these things may result in rejection of the Tender.

Tenderers which do not fulfill any of the conditions of notification and general rules and directions for the guidance of the Contractors on page 1 of the Agreements Form (printed B-1 form) or are incomplete in any respect are liable to be rejected without assigning any reason thereof.

7. TENDER QUOTING

- a) The Tenderer should quote percentage below or above both in words and figures. No alteration in the form of the Tender and in the schedule of the quantities and no addition in the form of special stipulation will be permitted. No change in the units shall be allowed. The rates quoted in Tender shall be taken as applying to all weather conditions and the rates quoted will be inclusive of all taxes.
- b) Tendered percentage below or above shall be written at the appropriate place in English or in Marathi in ink, both in words and figures. In case the percentage expressed in words differs from that expressed in figures, the lower of the two will be taken as correct.
- c) Neither erasures nor over-writings shall be made in the price schedule and in general in the tendered documents. Every correction shall be made by crossing the pen across the incorrect or portion not required and writing the correct or required portion above. All corrections shall bear the dated initials of the Tenderer.
- d) All the pages of the Tender documents, conditions, specifications and drawings etc. shall be signed by the Tenderer with his full dated signature at the lower left hand corner.
- e) The Tender shall contain the name, residence and place of business of person/ persons submitting the Tender and each page of the Tender documents including drawings shall be signed by the tenderer with his full dated signature.
- f) Tender by partnerships shall furnish the full name (s) of the authorized representative on behalf of each partner, followed by the name and designation of the person signing. An attested copy of the partnership deed shall be furnished along with the Tender. A Tender by companies shall be signed with the legal name of the company and signed by the person authorized to sign it in the matter.
- g) Whenever, whether in the submission of the Tender or later in other matters, the signatures are made by one person on behalf of a company or partnership, the Tenderer shall supply an attested copy of the Power of Attorney.
- h) Witnesses and sureties shall be persons of status and probity and their names, occupations and address shall be stated below their signatures. All signatures shall be dated.

8. TENDERING PROCEDURE -

A) BLANK TENDER FORMS

Blank Tender forms can be downloaded from the website as stipulated in the Tender notice / corrigendum.

- i) The prospective Tenderers are free to ask for any additional information or clarification either in writing or orally and the reply to the same will be given by the Executive Engineer, Minor Irrigation (Local Sector) Div.No.1,Z.P. Solapur in writing and these clarification referred to as “common set of conditions” shall

form part of Tender documents and which will also be common and applicable to all Tenderers.

- ii) The Tender submitted by the Tenderer shall be based on the clarifications, additional facility issued (if any) by the Department and this Tender shall be unconditional. Conditional Tenders will be summarily rejected.
- iii) All Tenderers are cautioned that the Tenders containing any deviation from the contractual terms and conditions, specifications or other requirements will be rejected as non-responsive.

B) MANNER OF SUBMISSION OF TENDER AND ITS ACCOMPANIMENT-

The Tenderer shall submit the Tender documents by uploading online in two envelopes as below:

a) FEE / PREQUAL / TECHNICAL ENVELOPE :

The first envelope, named as “Envelope T1”, shall contain the following documents.

1. Scanned copy Receipt Of Online Transaction Of Tender Download Fee & earnest money Made By NEFT .
2. Certificates of Registration of the Contractor with the Government of Maharashtra / Zilla Parishad Solapur as may be applicable, duly attested by gazetted officer.
3. A list of machinery and plant immediately available with the Tenderer for use on this work and a list of machinery proposed to be utilized on this work, but not immediately available, and the manner in which it is proposed to be procured.
4. Details of works of similar type and magnitude carried out by the Contractor including construction periods.
5. Details of technical personnel on the roll of the Tenderer.
6. Details of other works tendered for and in hand, with the value of work unfinished on the last date of submission of Tender. The certificates from the head of the offices under which the works are in progress should be enclosed.
7. VAT registration certificate in respect of sale by transfer of property in goods involved in the execution of a work contract, under the provision of rule 58 of Maharashtra Value Added Tax Act 2005, should be enclosed in original or certified copy.
9. Income Tax Certificate: Attached copy of acknowledgement of Income Tax latest return or audit balance sheet with profit and loss account certified by C.A. valid on date of submission of Tender or N.O.C. from Income Tax Department.
10. **Appendix E, Declaration of the Contractor, duly signed on Letter Pad Or paper shall be enclosed, otherwise Envelope no. 2 will not be opened.**
11. Deed of Partnership or Articles of Association and Memorandum of Association for Limited Company.
12. Other necessary documents as per Detailed Tender Notice attached.

Signature of contractor

No. of corrections

Executive Engineer

b) FINANCIAL ENVELOPE – TENDER

The Tenderer should quote his offer on “BOQ” of the Tender as a percentage of estimated rates at the appropriate place in the Tender documents and enclose in Envelope C1. He should not quote his offer anywhere directly or indirectly in Envelope T1. The Contractor shall quote for the work as per details given in this Tender and also based on the detailed set of conditions issued /additional stipulations made by the Department as informed to him by a letter from Executive Engineer, Minor Irrigation (Local Sector) Div.No.1,Z.P. Solapur . This Tender shall be unconditional.

Scanned Copy Of DD/Bank Garantee Of Additional Performance Security Deposit Should Be Uploaded in Envelope No.2.

c) SUBMISSION OF TENDER

The two Envelopes T 1 and C 1, shall be submit online by uploading:
The date and time for receipt of envelope containing Tender shall strictly apply in all cases. The Tenderer should ensure that their Tender is properly uploaded & submitted before the stipulated expiry date and time. No delay on account of any cause will be entertained for the late receipt of the Tender. A Tender offered or received after the date and time is over, will either not be accepted or if inadvertently accepted, will not be opened.

d) OPENING OF TENDERS

On the date specified in the Tender Notice, the following procedure will be adopted for opening of the Tender.

TECHNICAL ENVELOPE (T1) :

Envelope T1 of all the Tenderers will be opened first to verify that its contents are as per requirements. If the various documents contained in this envelope do not meet the requirements of the Department, a note will be recorded accordingly by the Tender opening authority and the said Tender’s Envelope C1 will not be considered for further action and the same will be recorded.

FINANCIAL ENVELOPE (C1) :

This envelope shall be opened immediately after opening of Envelope T1, only if the contents of Envelope T1 are found to be acceptable to the Department. The percentage above or below the estimated rates shall then be read out.

9. The **Technical Envelope will be opened online on ---/ --- / 2017 at 16.00 hours**, if possible, in the presence of the Tenderers or their authorized agents who may choose to be present. Time & Date of Opening financial envelope will be informed by e-mail to responsive bidder .

10. THE TENDER WILL BE LIABLE TO BE REJECTED OUTRIGHT IF WHILE SUBMITTING IT

- 1) The Tenderer proposes any alterations in the work specified in the Tender or in the time allowed for carrying out the work or any other condition.
- 2) Any of the pages of the Tender are removed or replaced
- 3) The Tenderer, or in the case of a partnership firm, each partner thereof, does not sign or the signature/s is/are not attested by a **witness on the page No. ---** of the tender document in the space provided for the purpose (or provisions of paragraph 14(d) are not complied with). In the case of tender by companies, it should be signed by the legal

name of the company and signed by the person authorized to sign Tender documents in the matter.

- 4) Any erasures are made in the Tender.
- 5) All corrections and additions or pasted slips are not signed by the Tenderer.

11. EARNEST MONEY / SECURITY DEPOSIT

- i) a) A sum of **Rs. -----/- (Rs. ----- only)** on account of **earnest money** should be paid By NEFT and should submit scanned copy of Receipt Of Online Transaction along with Bid Capacity / Tender document at the time of submission online.
 - b) Earnest Money in the form of cash or cheques will not be accepted.
 - c) Contractors who have paid the required sum as deposit and executed the necessary bonds as per the rules of registration with Govt. of Maharashtra are exempted from the payment of earnest money. Such Contractors shall attach to their Tender a scanned copy of the certificate authorising exemption from earnest money payment. The Contractors, who have not lodged the necessary lump-sum deposit as above, shall pay earnest money as prescribed in the foregoing Para (a).
- ii) The earnest money paid by tenderers, in the case of Tenderers whose Tenders are not accepted, will be refundable. And in the case of the successful Tenderer, will be adjusted against Security Deposit, with the balance amount of security deposit augmented by deduction from bills towards security deposit, as stipulated in the printed B-1 form. In case of the successful Tender who is exempted from payment of earnest money as in Para (c) above, the payment of security deposit shall be as stipulated in the sub – para below:
The successful Tenderer who is exempted from payment of Earnest Money shall have to pay a **Security Deposit of Rs. -----/- (Rs. ----- only)** in cash within the period stipulated in Para 19 below at the time of signing of the agreements.
- iii) The **balance amount of security deposit of Rs. -----/- (Rs. ----- only)** shall be recovered by 3.00 % deduction from running account bills.

12. ADDITIONAL PERFORMANCE SECURITY DEPOSIT

If the Tenderer quotes a rate less than 10% below, then the Contractor has to furnish the additional Performance security deposit in the form of DD/Bank Garanty In Favour of Chief Accounts And Finance Officer (Sr) Solapur. Up To 10 % Below Tenders additional Performance security deposit Is 1 % Of Tender Ammount. For Below Tenders, Above 10 %, additional Performance security deposit Is 1 % + % Below Percentage above 10 % . For example, if the Contractor's quoted rate is 15% below, the Contractor has to furnish an additional Performance security deposit procedure mentioned above, (up to 10 % ,1% + For % More Than 10 % (15-10= 5 %)Total 6 %) . Scanned Copy Of DD Of Additional Performance Security Deposit Should Be Uploaded in Envelope No.2 i.e.Financial Envelope C1. DD/ Bank Garanty Should be Submitted To Office Of the Executive Engineer Minor Irrigation (L.S.) Division No.1 Zilla Parishad Solapur in Sealed Pocket by writing Name Of Work On Pocket ,Within 5 Working Days From The Date Of Acceptance of Tender . Pockets of DD Of Bidders ,other Than Lowest 2 Bidders will be returned Within 7 days From Opening Of financial Envelope. Pockets of DD Of 2 nd

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No. of corrections

Executive Engineer

Lowest Bidder will be returned Within 3 days From Work Order . Work Order Will Be Given To Succesfull Contractor After Clearance Of DD/ Bank Gararty . Additional Performance security deposit will Be Ruterned To Contactor Within 3 Months After satisfactory Completion of work. Additional Performance security deposit of Contractors Furnishing False Documents / DD, Will Be Forefitted & Their Registration Will Be Cancelled Temporarily For 1 Year .K (As per Govt. GR (Marathi) सार्वजनिक बांधकाम विभाग शासन निर्णय क बीडीजी 2016 / प्र.क .2 / इमा.2 दि.12/02/ 2016).New Shashan Nirnay Nusar DD/Bank Garanty Performance security deposit will Be Ruterned To Contactor Within Works Dosh Dayetwa Sampalnantar Work Order Ati va sharti nusar parat Dile Zail

13.ACCEPTANCE OF THE TENDER

Acceptance of the Tender will rest with the Executive Engineer, Minor Irrigation (Local Sector) Div.No.1,Z.P. Solapur, who reserves the right to reject any item of the Tender, or a Tender, or all Tenders, without assigning any reasons thereof. The person/persons whose Tender may be accepted shall have to pay security deposit and enter into regular B-1 agreement within ten days of being notified to do so and shall abide by all rules and regulations embodied therein. In the event of the failure of the Tenderer to sign the agreement within the stipulated time, the earnest money paid by him shall stand forfeited to Government and the acceptance of the Tender shall be considered as withdrawn. In the case of Contractors who are exempted from paying the earnest money and who fail to pay the security deposit and sign the agreement in the stipulated time, the fixed amount deposited by them as per the rules governing registration of Contractors, shall stand forfeited to the Government. The facility of not paying earnest money extended to such Contractors shall also stand withdrawn from the date on which they fail to comply with the requirements, and their registration is also liable to be cancelled.

The offer shall remain open for acceptance for a minimum period of 90 (Ninety) days from the date fixed for opening the same and thereafter until it is withdrawn by the Contractor by notice in writing, duly addressed to the authority opening the Tender and sent by registered post acknowledgment due or otherwise delivered at the office of such authority and also subject to other conditions shown in Memorandum of Agreement printed.

14. The right is reserved to revise or amend the Tender documents prior to the last date notified for the issue of Tenders. Such revisions or amendments or extensions shall be communicated to all concerned in the form of addenda or by notice in the Press as may be considered suitable.
15. Should some times of work are being executed departmently. The quantities that would be executed during the period between the issue of tender notice and fixation of agency will be deducted from the quantities in the tender. The tender should take cognizance of this fact and no claims would be tenable on account of such reduction in the quantities (vide Govt. letter No. 1076/1181/666(E) 17dated 08/06/76.)
16. The successful Tenderer should produce to the satisfaction of the competent authority accepting the Tender a valid and concurrent license issued in his favour under the provisions Maharashtra Contract labour (Regulation and Abolition) Act 1970 and Maharashtra Contract Labour (Regulation and Abolition) Rule 1971 before starting the work. On failure to do so, the acceptance of the Tender will be liable to be withdrawn and also the earnest money will be forfeited to the Government.

Signature of contractor

No. of corrections

Executive Engineer

17. As per Government of Maharashtra, Irrigation Department, circular No. Misc. 1997 (S97) MPCP Mantralaya, Mumbai Dt. 22.5.98, in the case of the possibility of excess execution of the quantities of several items, the necessary proposals are to be submitted to the competent authority for approval before execution of work with the decision being binding on the Contractor.
18. The Contractor is bound to submit his yearly work program regarding item-wise quantities, amounts and other details regarding it, month-wise which will be finalised by the Executive Engineer, before the issue of the Work Order and the same will be revived at the beginning of the financial year as per availability of the funds. The work schedule may be periodically revised in agreement with the Executive Engineer, only if found necessary due to circumstances beyond the control of the Contractor.

19. Subletting of work

The contractor shall not be permitted to sublet any of the work .

20. Treasures Trove.

In the event of discovery by the contractor his employee during the progress of any treasure fossils , minerals or other articles or things of value of interest the contractor shall give immediate notifications thereof to the Engineer – in – charge such treasurer or the things which shall be the property of the Rural Development department.

Signature of contractor

No. of corrections

Executive Engineer

SPECIAL CONDITIONS OF THE CONTRACT
(These will apply to all items of works etc. as relevant)

1. OUTLINE OF WORK

- 1.1 The work will be on the lines of the set of plans attached to the Tender documents. However, the plans are liable to be changed in the course of execution and the strata shown thereon are approximate.
- 1.2 The items of work and their approximate quantities are given in Schedule "B" of the Tender.
- 1.3 The specifications of the work shall be as per the Detailed General Specifications attached to this Tender and shall be strictly enforced.
- 1.4 All levels shown in the drawings are approximate and depths of excavation are likely to be increased or decreased depending upon the strata met with during actual excavation. No claims on account of change in depth of strata or change of slopes will be entertained. The designed layout shown in the Tender drawings is tentative and is subject to modifications. Such modifications shall not be a reason for any claim.

2. UNIT OF QUOTING RATE

- 2.1 The percentage above or below shall be quoted with respect to the estimated rates in "BOQ"

3. SITE CONDITIONS

- 3.1 It shall be presumed that the Contractor has satisfied himself as to the nature and location of the works, the general and local conditions, particularly those bearing on material availability, transport, handling and storage of materials, disposal of spoils, availability of labour, weather conditions, sources of water etc. and has estimated the cost accordingly. Government will bear no responsibility for any lack of such acquaintance with the site conditions and the consequence thereof to the Contractor.

3.2 HOUSING

No local housing is available and the Contractor should arrange for suitable housing for his staff and labour, offices, etc. at his own cost within the area of work, as directed by the Engineer-in-charge. Land for the same will be made available free of charge for temporary use during the course of execution, if available with the Department.

- 3.2.1 It is the responsibility of the Contractor to provide firewood for the domestic use of the workers at the project site.

3.3 WATER SUPPLY AND DRAINAGE

- 3.3.1 The Contractor shall make his own arrangements at his cost for the water supply to his colony and to the work site required for the work. The details of his proposed supply shall be approved by the Engineer-in-charge. Fresh and potable drinking water shall be made available by the Contractor to all persons working at work site in clean and hygienic earthen or other pots at all working places and in sufficient quantities.
- 3.3.2 Similarly the disposal of solid waste and waste water / drainage arrangements will have to be made by the Contractor at his own cost to the entire satisfaction of the Engineer-in-charge.

Signature of contractor

No. of corrections

Executive Engineer

3.4 CAMP REGULATION

The Contractor shall be responsible for maintaining order in his camp and on his work site and to that end shall employ such officers, watchmen or other persons, as required, at his cost.

Unauthorized or undesirable persons shall be excluded from the camp and from the works. If, in the opinion of the Engineer-in-charge, any employee or agent of the Contractor misbehaves or causes obstruction in the proper execution of the work or otherwise makes himself undesirable, the Contractor shall on receipt of the instruction to do so, remove him from the premises. Employees of the Contractor shall mean any person employed by him or his sub-Contractors, (if subletting is permitted by the Engineer-in-charge), or any person employed on the work, contracted for or on behalf of the Contractor.

3.5 MEDICAL AID

Medical aid for the Contractor's men shall be arranged by the Contractor at his own cost. The Contractor shall provide first aid boxes on the work site. These boxes shall always be filled with all required medicines.

3.6 ROAD

3.6.1 The Contractor shall construct and maintain suitable inspection roads within the work limits at his own cost. There will however be no charge for any reasonable use by the Contractor of any road constructed by the Government. As Government machinery will be moving on the haul roads, if any accident occurs, the Contractor will have no claim on that account and will have to pay compensation etc. for such accident as per rules, regulations, laws etc. pertaining to these matters.

3.6.2 All quarry roads and paths for the conveyance of materials from the quarries to the site of work and for all other operations required for the contract shall be constructed and maintained by the contractor at his own cost.

3.7 ELECTRICAL POWER

3.7.1 The Contractor will have to make his own arrangements for electric power at his cost and this shall not constitute any reason for any claim in this behalf. The Contractor will have to make his own arrangements to lay and maintain the necessary distribution lines and wiring for his colony and the works at his cost. All wiring and methods of construction for overhead distribution lines and other lines shall be in accordance with the Indian Electricity Act 1910 and Indian Electricity Rules 1956.

3.7.2 The layout and method of laying the lines and wiring and the nature of connected loads shall have the prior approval of Engineer-in-charge.

3.7.3 In the case where electrical power is locally available from the Government, it will be supplied to the Contractor at the prevailing rates plus the duties and taxes applicable as per M.S.E.D.C. tariffs. The Contractor shall however have no claim for any inconvenience and loss caused due to non-availability of power or any interruption or break down in supply once the supply is started.

3.7.4 The Contractor shall be and remain answerable and liable for any loss or damage or injury to any person or any property of Government, or other, caused by, arising from the failure of observance of the Indian Electricity Act, 1910 and Indian Electricity Rules 1956. Sufficient lighting as directed by the Engineer-in-charge shall be provided by the Contractor at his cost and risk in the working area and in the ancillary areas.

4. ERRORS, OMISSION AND DISCREPANCIES :

In all cases of omission, doubt, or discrepancies in the dimensions or description in the drawings and items of work, it shall be referred to the Engineer-in-charge, whose clarification and elaboration shall be considered as authoritative, subject to provision of clause No.30 of the B-1 Form Conditions of Contract. The Contractor shall be held responsible for any error that may occur in the work through lack of such reference and precautions.

5. SUPPLY OF MATERIALS BY AGENCY :

5.1 CEMENT :

5.1.1 All cement required for the work under this Contract shall be procured well in advance by the Contractor from the nearest cement factory(s). Ordinary Portland cement of 43 grade conforming to I.S. 8112, 1989 and subsequent revisions thereof, if any, packed in 50 kg woven HDPE bags conforming to I.S. 11652 of 1986, shall be supplied.

5.1.2 The Contractor shall produce proof of purchase of cement from the cement factory(s). The purchase bill supported by a Delivery Challan and Excise Gate Pass shall constitute adequate proof of purchase. Cement shall be stored in such a way as to allow its removal and use in chronological order of receipt i.e. first received being first used.

5.1.3 Cement shall be kept in a weather-proof store under a double locking arrangement (one lock to be operated by Contractor and second lock to be operated by the authorised person of Department) so that it can be taken out or fresh stock admitted with the knowledge of supervising staff of the Government. The watch and ward of the cement stores shall be the responsibility of the Contractor.

5.1.4 If godown facilities are available with the Department, the same will have to be utilised by the Contractor as per the terms and conditions as decided by the Engineer-in-charge.

Testing :

5.1.5 Cement shall be tested from Government approved laboratory by Contractor's own cost and results submitted to Department. Cement shall be provided free of cost by the Contractor to the Engineer-in-charge, as and when desired, for testing purpose.

5.1.6 The Engineer-in-charge or his representative shall at all times have access to the storage and work sites of the Contractor and shall have authority to check and examine security records, storage records and records of on-site usage, which are to be maintained up-to-date and provided by the Contractor. The Contractor shall comply with instructions that may be given by the Engineer-in-charge.

5.1.7 The godown shall have masonry walls (U.C.R. or B. B.) and double locking arrangements. The construction should be completely leak proof. The floor should be not hard material like shahabad or cement concrete as will not absorb and retain moisture. The godown and stocking arrangements shall be such as not to damage cement. The damage to the cement stored in the contractor's godown shall be solely his responsibility. The contractor shall not be allowed to use the damaged cement on the work. The end disposal of such cement shall be Engineer-in-charge.

Signature of contractor

No. of corrections

Executive Engineer

- 5.1.8 The Engineer-in-charge or his authorised representative is authorised to inspect lorries of cement and all other materials of the Contractor before allowing them to proceed out of the works area.
- 5.1.9 Whenever the cement is used on weight basis by correcting the bag weight for 50 kg. net cement the excess or shortage from the actual cement bag as received from the market shall be corrected and neat record of every use and excess or shortage noticed should be signed by
The Engineer-in-charge of work operation and contractor or his representative. The extra cost of cement if any will be borne by the contractor. However, the contractor will make available necessary ledger, weighing arrangements and supervising staff at no extra cost on to this account.

5.2 STEEL

The Contractor shall procure steel from the market. The Contractor shall make necessary arrangement at his own cost for samples from the available stock and shall confirm with the specifications laid down by the Bureau of Indian Standards (vide their specification Nos. I.S. 432 (part-1) of 1966, 1139-1966, 1786-1979) and subsequent revisions.

- a) The Contractor should store the steel of 60 days requirement at least one month in advance.
- b) The contractor will have to construct sheds for storing steel having capacity not less than the steel required for 90 days use at works site. The Engineer-in-charge or his representative shall have free access to inspect to such stores and storage arrangement and to suggest modification and improvement if any and the contractor shall comply with the same. The storing arrangement shall be such as to afford convenience of the inspection and check of materials. Bars of the same size, length, shape & grade shall be assembled in stock & marked distinctly.
- c) The contractor shall further, at all time satisfy the Engineer-in-charge on demand, by production of records and books or by submissions, returns and other proofs as directed that the steel is being used as tested and got approved by the Engineer-in-charge for the purpose and the Contractor shall at all times maintain proper record of showing the basis of receipts & utilization of steel procured by the contractor & these shall at all times be open for inspection of the Engineer-in-charge.
- d) The Contractor shall procure the steel from main producers such as SAIL. Rolled steel will not be acceptable. They should bring the test certificates of steel procured by them from the manufacturer and presented to Engineer-in-charge for inspection.
- e) The steel procured should conform to the standard specification of Bureau of Indian Standards IS No. 1786 of 1979 for Tor Steel and IS 432 of 2000 for mild steel.
- f) Steel samples required for testing shall be supplied by the Contractor free of cost, However testing charges also to be borne by the Contractor.
- g) Structural steel shall conform to IS 2002.

5.3 EXCAVATED MATERIALS

5.3.1 All the materials available from excavation will be property of Govt. and shall be disposed off as directed by the Engineer-in-charge. The materials of approved quality may be used by the contractors in the items of work included in the schedule of prices for ancillary or preparatory work at the rate of prevailing royalty charges.

Prior approval of the Engineer-in-charge for such use shall however be taken. The contractor shall make proper arrangements for sorting out and stacking material of approved quality that he proposes to use aforesaid. Government will be free to make use of other materials not likely to be required for use by the contractor as will be determined by the Engineer-in-charge. The excavated materials not to be used by the contractor as above or stacked for his use but remaining unused at site after completion of works shall be disposed off by the contractor in a manner and places as directed by the Engineer-in-charge.

Govt. Of Maharashtra Irrigation Department Circular No. JAY 1080/105543 (1290) MAJ 6 dated 19-9-81.

The separable spoils available from adjacent reaches /canal works, etc. other than those in the tender under consideration shall be permitted to be used by the contractor free of cost provided these materials are used solely for the specific contract work in question, with the prior approval of the Engineer-in-charge. However no claim on account of non-availability of the separable spoils will be entertained by the department.

5.3.2 The contractor shall use the extracted materials like rubble stone and quarry spauls, as the Executive Engineer, may direct and approve after removal, direct from excavation or from dumps as the Executive Engineer, may stipulate, The selection, sorting and stacking shall be done according to the direction of the Executive Engineer free of charge by the contractor.

5.3.3 The Contractor shall supply free of cost the necessary quantities of sand, stone and aggregate etc to the government for carrying out tests as required by the Engineer-in-charge. This shall be done well in advance of the construction operation so as to get approved the quality of the materials. The cost of opening quarries and operating them shall be borne by the Contractor.

5.4 STONE

5.4.1 The Contractor shall visit various stone quarries operating in the nearby region and ascertain the levels and areas in which stone of good and acceptable quality is likely to be available. It is necessary for the Contractor to investigate his own quarries which will yield stone in sufficient quantities and of required quality for the works. However, if a quarry location approved by the Engineer-in-charge does not yield adequate and suitable stone, no claim will be entertained and other quarry locations will have to be investigated and established by the Contractor at his own cost and risk. The quality of stone from all quarries shall be got approved by the Engineer-in-charge before using it on the work. The contractor shall have to make arrangements at his own cost for construction and maintenance of all roads leading to and fro stone quarries as required by him.

- 5.4.2 The locations of quarries have to be such that they do not affect permanent structures as well as should not be near existing or proposed habitation. The locations and sizes of quarries shall be subject to approval of the Engineer-in-charge. However, if a quarry location approved by the Engineer-in-charge, on its opening, does not yield adequate and / or suitable stones, no claim can be raised against the department. In that case other quarries will have to be established by the Contractor at his own cost and risk and the stone got approved from the department for its quality before using it in the work.
- 5.4.3 If the stone quarries are located in the lands acquired by the department, the Contractor would be allowed to quarry the rubble from these areas. If the quarries are located in private properties, the Contractor shall make his own arrangements to the legal rights and attend to payment etc. to the concerned parties for operation of these quarries at his own cost. Similarly he shall make arrangement for roads leading to and from the stone quarries to the work site at his own cost.
- 5.4.4 In the stone quarries, where weak rocks like volcanic breccias etc. are met with, such rocks will be rejected and not allowed for use in the masonry. The quarrying will have to be adjusted to avoid these and other types of weak rocks.

5.5 SAND

- 5.5.1 The Contractor shall make his own arrangement for procurement of sand of approved quality and the same should be got approved from the Engineer-in-charge before it is used on the work. However, if the quarry location approved by the Engineer-in-charge does not yield adequate suitable sand, no claims can be raised against the Department. In that case, another quarry location will have to be established by the Contractor at his own cost and risk. The sand from such quarries should be got approved from the Department before using it on the work.
- The Contractor shall have to make arrangement at his cost for construction and maintenance of all roads leading to and from sand quarries to the work site as required by him.

5.6 PETROL, OIL AND OTHER LUBRICANTS

- 5.6.1 The Contractor shall have to make his own arrangement for procurement of petrol, diesel, oil and other lubricants.

6.0 EXPLOSIVES PROCUREMENT AND STORAGE -

- 6.1 Explosives, petrol, oils, fuels and other inflammable materials shall be stored strictly in accordance with the rules of the Explosives Department.
- 6.2 The Contractor shall, at his own expense, construct and maintain, at the site of works a proper magazine for storage of explosives and proper storage facilities for oil, fuel, etc. for use in connection with the work without any extra cost.
- 6.3 The Contractor shall, at his own expense, obtain such licenses as may be necessary for storing and using explosive, oils, fuels, etc. the Department shall not accept any responsibility whatever in connection with the storage or use of explosives on the site or any accident or occurrence whatsoever in connection therewith. All operations of the Contractor in which or for which explosives are employed shall be at the risk of the Contractor and upon his sole responsibility.

- 6.4 The Contractor shall arrange for the procurement of all the explosives at his cost and risk.
- 6.5 If the Contractor fails to satisfy and provide safety precautions and fails to maintain satisfactory accounts of explosives, he shall be liable to the penalties under the rules. Skilled person shall be kept available on the work site to undertake all blasting operations.

7.0 DATA TO BE FURNISHED BY THE CONTRACTOR

- 7.1 The Contractor shall submit to the Engineer-in-charge within a fortnight of the award of Contract, a list of the construction plant and equipment to be used for the execution of work and the names and qualifications of his staff assigned to supervise the work
- 7.2 Immediately after receipt of the Work Order to commence the work, the Contractor shall submit to the Engineer-in-charge for approval, the plans in triplicate showing the location of his work- shop and storage building, storage yards, offices, Contractor's colony (including its services) and housing facilities which he proposes to erect at site. Suitable housing arrangements for the labours employed by the Contractor or his piece workers will be the Contractor's responsibility and the location of huts shall be in the prescribed area only, which shall be got approved from the Engineer-in-charge.
- 7.3 No change in the approved layout shall be carried out without the written approval of the Engineer-in-charge.

8. USE OF SITE

- 8.1 The Contractor shall be permitted to use the following for the bona fide purpose of the execution of this Contract, free of charge.
- i) The site required for construction of the work .
 - ii) The approach and haul roads constructed by Government subject to para 3.6.1.
 - iii) The quarries for stones, sand and surkhi and the Government land required for Contractor's buildings and storage yards.
- Use of quarries will be subject to Royalty charges as per para 10 below. The extent of land required by the Contractor shall be decided by the Engineer-in-charge at his sole discretion.
- 8.2 All areas of operation including those for his staff and labour colonies, handed over to the Contractor shall be cleared and handed back in good condition to the Engineer-in-charge except areas under works constructed in accordance with this Contract or those for which specific approval has been obtained from the Engineer-in-charge.
- 8.3 Wherever possible and desirable, the Contractor shall preserve all existing vegetation adjacent to the site, which does not interfere with the construction, as determined by the Engineer-in-charge .
- 8.4 The land shall, as herein before mentioned, be handed over back to the Executive Engineer within six months after the completion of the work under this Contract. Also no land shall be held by the Contractor longer than the Engineer-in-charge shall deem necessary and the Contractor shall on due notice by the Engineer-in-charge, vacate and return the land which the Engineer-in-charge may certify as no longer being required by the Contractor for the purpose of the work, failing which

the Contractor shall be liable to pay rent for the land so occupied, at the rate prescribed by the Engineer-in-charge.

9. CERTIFICATE

The contractor should certify after careful study and with due diligence, "I hereby certify that all the lead charges, lift charges, etc. for various construction materials are included in the rate of the items and no claim will be put forth by me on this account".

10. ROYALTIES

All quarry fees, royalties, octroi dues and ground rent for stacking materials, if any, shall be paid by the Contractor. (As per PWD GR No. (Marathi) Misc. 02/05/ (291) / Buildings-2 Dated- 11/9/2003 and Revenue & Forest Dept.'s circular No. Royalty(revision) 2010, Dt. 11.02.2010).

11. PROGRAMME TO BE FURNISHED

11.1 As soon as practicable after the acceptance of Tender, but not later than 15 days, the Contractor shall submit to the Engineer-in-charge for his approval, a program showing the procedure and method by which he proposes to carry out the works, and shall whenever required by the Engineer-in-charge, furnish particulars in writing of his arrangements for carrying out works and the construction plant, temporary works, etc that he intends to use or construct as the case may be. No extra claims shall be admissible except as per the conditions provided for in the Tender.

11.2 For guidance in preparing the programme for dates by which the various items shall be executed are given below.

Sr. No.	Item	Cumulative % of work quantity period wise				Remarks/ Total
		... to ... months	... to ... months	... to ... months	... to ... months	
	Contractor's programme attached separately on page .No. -----					
	TOTAL (AVERAGE) PERCENTAGE					

The program on the other items which are not quoted herewith should be matching with the progress of items given above.

11.3 The submission to and approval by the Executive Engineer of such a program shall not relieve the contractor of any of his duties or responsibilities under this contract.

12. SETTING OUT

12.1 The Contractor shall be responsible for the true and proper setting out of the works and for the correctness of the position, levels, dimensions and alignment of all parts of works and for the provision of all necessary instruments, appliances and labour in connection therewith. If at any time during the progress of works, any error shall appear or arise in the position, level dimensions or alignment of any parts of the works, the Contractor shall rectify such error to the satisfaction of the Engineer-in-charge without any extra cost to the Government.

12.2 For the purpose of setting out, two end bench marks of which values shall be furnished by the Engineer-in-charge shall be provided by the Department near the

Signature of contractor

No. of corrections

Executive Engineer

site of work. The locations of such bench marks shall be apexes of the centre line or at appropriate locations specified by the Engineer-in-charge. All setting out shall be with reference to these bench marks and any errors, for the purpose of para 12.1 and 12.3, shall be with reference to these marks and levels.

12.3 The checking of any setting out or of any line or level by the Engineer-in-charge or his agent shall not in any way, relieve the Contractor of his responsibilities for the correctness thereof and the Contractor shall carefully protect and preserve all bench marks, site rails and other things used in setting out of the works.

12.4 **Signing field books, longitudinal sections and cross sections**

Before starting the work and before any work is covered, levels for plotting the longitudinal and cross sections of the portions of the work shall be taken by the Engineer-in-charge or his authorised representative in the presence of the Contractor or his authorised agent, who shall sign the field books (on the same day) and plans showing the longitudinal and cross sections, in token of acceptance. If the Contractor fails to sign, the levels recorded by the Engineer-in-charge or his representative shall be final and binding on the Contractor. For this purpose of taking levels a suitable date shall be fixed by the Engineer -in-charge and intimated to the Contractor at least three days in advance. If the Contractor or his duly authorised agent fails to attend on the appointed date or dates, the levels shall be taken in his absence and such levels and longitudinal and cross sections based thereon, shall be final and binding on the Contractor.

13. FOSSILS, ETC.

13.1 All gold, silver, oil or other minerals of any description and all precious stones, relics, fossils, coins, articles of value, articles of antiquities, old structures and other remains or things of geological, archaeological or religious interest discovered in or on the site of work shall be the absolute property of the Government and all measures shall be taken by the Contractor to protect the same from any damage or removal, and immediately upon discovery, the Contractor shall inform the Engineer-in-charge of the find.

14. PATENT RIGHT

14.1 The Contractor shall indemnify the Engineer-in-charge, from and against all claims and proceedings for, or on account of, infringement of any patent right, design, trade marks, or other protected rights in respect of any construction, plant, machine work or materials used for, or in connection with, the works of temporary or permanent nature and from and against all claims, demands, proceedings, damages, cost charges and expenses whatsoever incurred in relation thereto.

15. NIGHT WORK

15.1 When work has to be carried out at night, the Contractor shall obtain written permission of the Engineer-in-charge. In the event of such sanction being granted, proper arrangements for supervision, lights, etc. shall be made to the satisfaction of the Engineer-in-charge.

16. PROTECTION OF MATERIALS

16.1 Materials shall be transported, handled and stored on the site in such a manner as to prevent, damage, deterioration or contamination.

17. PRECAUTION DURING FLOODS AND RAINS

17.1 It is the responsibility of the Contractor to preserve and maintain in safe condition all work, materials, machinery and tools from floods and rain and no compensation will be paid on any account.

18. PASSING OF FOUNDATIONS

18.1 After the completion of excavation work the same will be checked and passed by the Engineer-in-charge before backfilling or masonry or concrete work shall proceed.

19. QUARRIES

19.1 It is necessary for the contractor to investigate his own quarries which would yield stone and other material such as sand surkhi, murum, soil etc. and satisfy himself of the availability in desired quantities and quality.

19.2 The tenderers should in particular see his own quarry sites and satisfy themselves about the quality and quantities of the material available as the rates quoted will be inclusive of all leads and lifts involved in bringing the materials from his own quarries.

19.3 He shall supply free of cost necessary quantities of sand, stone and aggregate to government for carrying out test as desired by the engineer-in-charge well in advance of the construction operation so as to get approved the quality of the materials. The cost of opening quarries and operating them shall be borne by the contractor.

20. WORK ORDER BOOK

20.1 The Contractor shall supply and maintain a bound work order book at the work site as directed by the Engineer-in-charge and shall make it available to the Engineer-in-charge or his representative, whenever requested. The work order book should have pages in triplicate and triple carbon papers should be provided with them. The Engineer-in-charge or his representative may record orders regarding works in this book, leaving the original copy in the book and removing the second and third copies to take with him. All orders recorded in these work order books shall be deemed to have been served on the Contractor. On completion of the work, all the work order books shall be handed over to the Engineer-in-charge.

21. NO CLAIMS ON ACCOUNT OF DELAY DUE TO DEPARTMENTAL OR OTHER CONTRACTOR'S WORK

21.1 Delay on account of holding up work under this Contract due to the execution of work such as drilling and grouting, laying of pipes for construction of sluice and penstock, erection of gates for the irrigation and power outlets and other works being carried out simultaneously either by the Department or any other Contractor, shall not form reason for any claims by the Contractor.

22. EMBEDDED PARTS

22.1 Installation of all embedded parts such as for gates for penstock, irrigation outlets, pipes for penstock and construction of sluice or any other metal work (either supplied by the Department or bought by the Contractor at his own cost) stands included in the relevant item of Schedule "B". No extra payment will be made for the installation of this embedded metal work or for delays or for interruptions arising there from.

22.2 The Contractor shall allow free use of gangways, etc. if any constructed by him, for Department work.

Signature of contractor

No. of corrections

Executive Engineer

23. CO-ORDINATION WITH OTHER CONTRACTORS

23.1 Where other agencies, including the Department, are working in the same area for works other than those included in this Contract, the Contractor shall co-operate with these agencies to the fullest extent and shall allow them reasonable facilities and co-ordination for execution of their works simultaneously and satisfactorily, as intended in the Contract conditions, specifications and drawings.

Should there be a dispute or disagreement between the Contractor and the other agencies for any cause whatsoever, the same shall be referred to the Engineer-in-charge whose decision regarding the co-ordination, co-operation and facilities to be provided by all the Contracting agencies to the others shall be final and binding on all parties and such decision shall not vitiate any Contract nor absolve the Contractor of his responsibilities under this Contract nor form the ground for any claim or compensation.

24. DEFINITION OF THE TERM ENGINEER-IN-CHARGE

24.1 The Engineer-in-charge means the Executive Engineer directly in charge of the work or any other officer duly authorised on his behalf.

25. SUB-SURFACE CONDITIONS:

25.1 The probable rock line as roughly assessed from logs of the various bores and trial pits taken along with and in the region of the various elements of works are shown on the drawings. The cores of these logs are available for inspection at site. The Contractor shall study the actual cores and draw his own conclusions as to the stratigraphy and nature of the materials. The Contractor shall acquaint himself with the local geology including the intertrappen layers, brecciated rocks and water bearing possibilities of the softer strata that are expected to be encountered. The Contractor shall bear full responsibility for his deductions and conclusions as to the nature and condition of the rock and other materials and any difficulties associated with their excavation and use.

26. DEATH, BANKRUPTCY, ETC:

26.1 If the Contractor shall die or commit any act of bankruptcy, or being bankrupt commences winding up, the executors, successors or other representative in liquidation or any person in whom the Contract may become vested, shall forthwith give notice thereof in writing to the Government and shall for one month, during which he shall take all reasonable steps to prevent a stoppage of work, have the option of carrying out this Contract subject to his or their providing such guarantee as may be required by the Government, to the value of work remaining unexecuted. In the event of stoppage of work, the period of option under this clause shall be fourteen days only. Should the above option be not exercised, the Contract may be terminated by Government by notice in writing to the Contractor. The power and provisions reserved to Government in this Contract of taking of the work out of Contractor's hand shall immediately become operative.

27. REFERENCE TO STANDARD SPECIFICATIONS:

27.1 The specifications of the work as attached to this Contract are drawn with a specific reference to site conditions and do not everywhere include the details of standard tests and procedures, which are already laid down and available in the current Indian Standard Specifications. Whenever such details are not specified in this Contract, provisions under the current Indian Standard Specification and the

Signature of contractor

No. of corrections

Executive Engineer

Standard Specification (1965, and as amended from time to time) of Government of Maharashtra shall be deemed to be applicable.

28. PAYMENT OF THE RUNNING ACCOUNT BILLS

28.1 With references to clause 10 of B-1 form the payment of the bills will be made monthly.

28.2 If due to paucity of fund availability the payment is not made at regular intervals, no claim on this account will be entertained.

29. INCOME TAX

29.1 Deduction for **Income Tax at the rate of 2.30 % (Two Point Thirty percent)** plus surcharge if any, **VAT 5 %** , as applicable from time to time on such deduction, will be made on the gross payment of each bill due to the Contractor without excluding any adjustment on account of cost of material, hire charges of machineries or any services rendered by the Department. **(VAT is applicable 2% for those who are registered under the provision of Rule of Maharashtra Value Added Tax Act 2005 for the purpose of levy of Tax & 5 % applicable for unregistered contractor under VAT.)**

The Tender rates are inclusive of all taxes, rates, cesses and are also inclusive of the Leviable tax in respect of sale by transfer of property in goods involved in the execution of work contract under the provision of rule of Maharashtra value added tax act 2005 for the purpose of levy of tax.

30. ENGAGEMENT OF APPRENTICE

30.1 It is obligatory on the part of the contractor to engage requisite number of apprentices by the State Apprenticeship Advisor and train them in the Bldg. trade (such as (i) Brick layer Bldg. Constructions, (ii) Carpenters and (iii) Plumbers as well as black smith) which have been specified designated trades under the Apprenticeship Act. 1951.

31. DEPARTMENT'S ASSISTANCE

31.1 Though there is difficulty in procuring Explosives, tubes, tyres, food grains and other such materials and commodities the Department does not undertake any responsibility for assured supplies thereof. However the department will assist the contractor in forwarding recommending his requirements for the work to proper authorities for all these articles without any commitment on the part of the Department.

32. ARBITRATION

32.1 In case of any dispute between the Contractor and the Government in any matter whatsoever, it shall be resolved as per the provisions of Clause 30 of the B-1 form and in no circumstances reference to the Arbitration Act will be entertained .

33. PRICE VARIATION CLAUSE

Deleted

34. INSURANCE FOR CONTRACT WORK

The Contractor shall take out an Insurance Policy or Policies so as to provide adequate insurance cover for the execution of the awarded Contract work with the 'Director of Insurance, Maharashtra State, Mumbai- 400 051' only. Its postal address for correspondence is "264, Mhada, opposite Kalanagar, Bandra (E), Mumbai - 400 051, (Tel. No. 26438403) (Fax) 26438461/26438690, Insurance policy/policies taken out from any other company will not be accepted. However, if the Contractor desires to effect insurance

Signature of contractor

No. of corrections

Executive Engineer

with the local office of any other insurance company, the same should be under the co-insurance-cum-servicing arrangements approved by the Director of Insurance. If the policy taken out by the Contractor is not on a co-insurance basis (G.I.F. 60% and insurance company 40%) approved by the Government Insurance Fund, the policy will not be accepted and the amount and the premium calculated by the Director of Insurance will be recovered directly from the amount payable to the Contractor for the executed work.

35. SPECIAL CONDITIONS FOR THE MATERIAL TO BE BROUGHT BY THE CONTRACTOR

All the materials including cement, steel etc. brought by the contractor for the work shall be reported to the Engineer-in-charge along with the necessary test report from Govt. laboratory.

Cement shall be brought of 43 grade confirming to I.S. 8112 of 1989 and to confirm concrete strength as per IS 456-1978.

The steel supplied by the contractor shall be confirming to I.S. 432 (Part-1) of 1966 and I.S. 1786 of 1976 amended time to time.

Required quantity of explosive shall be brought by the contractor from the Govt. authorized depot. Document such shall be furnished to the Engineer-in-charge only. Skilled persons to be kept on work site for all blasting operation.

The structural steel to confirm I. S. 800 1962 and subsequent revision thereof quality control on the site should be the responsibility of the Engineer-in-charge with necessary equipment and labour made available by the contractor. It is the responsibility of the contractor to prove to the site Engineer that this work meets the required specifications. The responsibility of quality control of work will be the site Engineer who will give necessary guidance and administrative support by the Engineer-in-charge. The Engineer-in-charge will be the overall in charge of the quality control on the site and the quality control on the site is the responsibility of the contractor.

Corrigendum: All references to proctor density, modified proctor density or standard proctor density in the contract documents.

36. MODE OF PAYMENT OF THE QUANTITIES OF EXCAVATION, MASONRY AND CONCRETE ITEMS EXECUTED IN EXCESS OF 125%

Clause No. 38 of B-1 Tender form pertains to payment of quantities of different items of schedule 'B' in excess of 125% of the Tendered quantities. It is to be clarified that in case of items of excavation in soft strata and hard strata in the present Tender, this clause will become applicable only if the total quantity of excavation (i.e. quantity given for excavation in Part-I or Part-II. excavation in soft strata and quantity given for excavation in hard strata) exceeds by 125% during execution. Quantity of excavation in Part-I (soft and hard strata) and in Part-II (soft and hard strata) will be considered separately for this purpose. For payment of quantity executed in excess of 125% of total quantity of excavation, the following procedure will apply.

EXECUTED QUANTITY OF INDIVIDUAL ITEM EXCAVATION

CASE-1

Where the quantity of excavation executed exceeds 125% of total of tendered quantity of items of excavation in soft strata and hare strata, but quantity executed of anyone of the individual items is less than or equal to the tendered quantity, for that item all the excess

Signature of contractor

No. of corrections

Executive Engineer

quantity beyond 125% of total tendered quantity in items of excavation in soft hard strata, will be paid by revising the rate of only that item where excess has occurred.

CASE-2

Where total quantity of excavation executed for both items (excavation in soft strata and hard strata) exceeds 125% of the total tendered quantity, quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of excavation to total executed quantity of item of excavation is soft strata and hard strata.

Total executed quantity of items of excavation in soft strata and hard strata will be paid by revising the rate of individual items as per clause 38 (2) subject to the provision that the revision of rate will be applicable only for the quantity of individual item executed beyond 125% of the Tendered quantity.

In case if executed quantity is less than 75% of the total quantity of excavation in soft strata and hard strata, these will be treated on similar lines as (1) and (2) above.

CASE-3

Where total quantity of all Masonary items taken together exceeds 125% of the total tendered quantities of all Masonary items, quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of masonry to total executed quantity of all Masonary items taken together. Total executed quantity of items of masonry will be paid by revising the rate of individual items as per clause 38 (2) subject to the provision that the revision of rate will be applicable only for the quantity of individual item executed beyond 125% of the Tendered quantity.

In case of executed quantity less than 75% of the total quantity of all concrete items, these will be treated on similar lines as (1) and (2) above.

CASE-4

Where total quantity of all concrete items taken together exceeds 125% of the total tendered quantities of all concrete items, quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of concrete to total executed quantity of all concrete items taken together. Total executed quantity of items of concrete will be paid by revising the rate of individual items as per clause 38, (2) subject to the provision that the revision of rate will be applicable only for the quantity of individual item executed beyond 125% of the Tendered quantity.

In case of executed quantity less than 75% of the total quantity of all concrete items, these will be treated on similar lines as (1) and (2) above.

CASE-5

Where total quantity of all pitching (available + borrow) items taken together exceeds 125% of the total tendered quantities of all pitching (available + borrow), items quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of pitching to total executed quantity of pitching (available + borrow) items taken together. Total executed quantity of items of pitching will be paid by revising the rate of individual item as per clause 38(2) subject to the provision that the revision of rate will be applicable only of the quantity of individual item executed beyond 125% of the tendered quantity.

In case of executed quantity is less than 75% of the total tendered quantity of all pitching (available + borrow) items taken together these will be treated on similar lines as in case (1) and (2) above.

CASE-6

Where total quantity of all rock toe (available + borrow) items taken together exceeds 125% of the total tendered quantities of all rock toe (available + borrow), items quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of rock toe to total quantity of rock toe (available + borrow) items taken together and will be paid by revising the rate of individual item as per clause 38(2) subject to the provision that the revision of rate will be applicable only of the quantity of individual item executed beyond 125% of the tendered quantity.

In case of executed quantity is less than 75% of the total quantity of all rock toe (available + borrow) items taken together these will be treated on similar lines as it case (1) and (2) above.

CASE-7

Where total executed quantity of all Embankment (1) Hearting (available & borrow) (2) Casing (available and borrow) items taken together exceeds 125% of the total tendered quantities of all Embankment (1) Hearting (available & borrow) (2) Casing (available and borrow), items quantity in excess of 125% of total tendered quantity will be distributed in the ratio of executed quantity of individual item of Embankment i.e. (1) Hearting (available & borrow) or (2) Casing (available and borrow) to total executed quantity of all Embankment (1) Hearting (available & borrow) (2) Casing (available and borrow), items taken together. Total executed quantity of Embankment (1) Hearting (available & borrow) (2) Casing (available and borrow) items will be paid by revising the rate of individual item Embankment i.e. (1) Hearting (available & borrow) or (2) Casing (available and borrow), as per clause 38(2) subject to the provision that the revision of rate will be applicable only to the quantity, if individual item executed beyond 125% of the tendered quantity.

In case of executed quantity is less than 75% of the total quantity of all Embankment (1) Hearting (available & borrow) (2) Casing (available and borrow), item taken together these will be treated on similar lines as in case (1) and (2) above.

For payment of quantities in excess of 125% of tendered quantity, for items other than excavation, masonry, concrete and embankment items provision of clause 38(2) of B1 Tender Form will be applicable.

Payment of work done under items of excavation in soft strata and hard strata will be made @ 90% of the contract rate in R.A. bills for all excavated quantities; till the final designed levels of excavation are achieved, as confirmed by Engineer-in-charge. The cross section as per design shall be deemed to have been achieved only if no work remains to be executed between the two adjacent cross section of Canal. 100% payment of contract rate in R.A. bills may be released only after the work of excavation is completed between two adjacent cross sections and continuously from one end of canal to the other. No Intermediate reaches will be considered.

37. ADDITIONAL CONDITIONS

37.1 The Contractor shall deploy the Required machines for this work as specified in the pre-qualification document. The machines shall be retained on site for the duration of the Contract (as per the work schedule) and all machines must be maintained in good working order.

- a) JCB/Poclair ,Truck /Tipper ,Water Tanker ,8/10 Tonne Roller
- b) Concrete Mixer.
- c) Needle Vibrator .
- d) Adequate & good Quality centering & FormWork .

Signature of contractor

No. of corrections

Executive Engineer

- 37.2 The Contractor shall have at least At least 1 supervisor shall be on site at all times.
- 37.3 Quality control on the site shall be the responsibility of the Engineer-in-charge with necessary equipment and labour made available by the contractor. It is responsibility of the contractor to prove the site engineer that his work meets the required specifications. The responsibility of the daily quality control of work will be of the Site Engineer who will be given necessary guidance and administrative support from the Engineer in Charge. The Engineer in Charge will be overall in-charge of the quality control on this work. The cost involved with the quality control on the site is responsibility of the contractor .
- 37.4 The final payment to the Contractor will only be made after a Completion Report for the works has been approved by the Engineer-in-charge and the Certificate of Completion has been issued (as per clause 7 of Conditions of Contract). The Completion Report is to comprise of (1) record drawings (2) quality control records (3) excess/saving note (4) materials test reports and (5) a Completion Inspection Survey of all components with design compliance certified by Engineer-in-charge.

38. LEVELING INSTRUMENT FACILITY

The contractor shall be required to provide a modern automatic leveling instrument of reputed make including leveling staff & stand etc , for taking measurements of the works at his own cost or by hiring.

The cost of instrument or hiring shall be deemed to have been included in the total cost of work and no separate payment for this will be made.

39. BLASTING BOULDER –

Measurement for blasting boulders bigger than 0.1 cum not covered by the excavation in over burden as indicated in the foregoing shall be taken on stacks of regular size. All such material for measurements shall be stacked in compact manners at convenient spot near excavation of work. Before final disposal specified area without any extra cost for arriving at the quantity to be paid for 50% of the measured stack volume shall be deducted from stacked measurement for voids. Such net quantities arrived at for payment will be deducted from quantity of the overburden. Boulders which are not to be paid for rock excavation will be disposed off.

APPENDICES

Signature of contractor

No. of corrections

Executive Engineer

APPENDIX 'A'**Details of the works of similar type and magnitude carried out by the Tenderer**

Sr. No.	Name of work	Place and Country	Tendered Cost Rs. In lakh	Time in which completed	Stipulated date of completion & actual date of completion with reasons (if delayed)	Principal features
1	2	3	4	5	6	7

APPENDIX 'B'**Details of other works tendered for and works in hand as on the date of submission of the Tender.**

Signature of Contractor

No. of corrections

Executive Engineer

Sr. No.	Name of work	Place & Country	Works in hand			Works tendered for			Remarks
			Tendered cost Rs. in lakh	Cost of remaining work Rs. In lakh	Anticipated date of completion	Estimate cost in Rs. lakhs	Date by which decision is expected	Stipulated date or period of completion	
1	2	3	4	5	6	7	8	9	10

APPENDIX 'C'

Details of plant & machinery immediately available with the Tenderer for use on this work.

Sr. No.	Name of equipment	No. of Units	Kind of Make	Capacity	Age and condition	Present location	Remarks
1	2	3	4	5	6	7	8

Signature of Contractor

No. of corrections

Executive Engineer

A. B. C. D.	Excavation, Compaction, Drilling & Grouting Equipment 1. 2. 3. Crushing, Concreting & Hoisting Equipment 1. 2. 3. Transporting Equipment Pumping, workshop & Miscellaneous Equipment 1. 2. 3.						
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Signature of Contractor

No. of corrections

Executive Engineer

APPENDIX 'D'

Details of **Technical Personnel** with the Tenderer

Sr. No.	Description	Name in full	Length of Service in firm	Qualification	Professional Experience & details of work carried out	Remarks
1	2	3	4	5	6	7
1.	Project Manager					
2.	Works Manager (Civil Senior Engineer)					
3.	Work Manager (Mechanical and Electrical)					
4.	Supervisors					

Signature of Contractor

No. of corrections

Executive Engineer

APPENDIX 'E'**DECLARATION OF THE CONTRACTOR**

1. I/We underscore the importance of a free, fair and competitive procurement process that precludes fraudulent use. In this respect we have neither offered nor granted, directly or indirectly, any inadmissible advantages to any public servants or other persons in connection with our bid, nor will we offer or grant any such incentives or conditions in the present procurement process or, in the event that we are awarded the contract, in the subsequent execution of the contract.
2. I/We _____ Contractor (s) hereby undertake that I / We shall pay the labours engaged on the work under this Contract, their wages as per Minimum Wages Act. 1948 and amendments thereto, applicable to the zone in which the work lies and act accordingly. I/ We also undertake to abide by the various laws in force and extend necessary facilities and amenities to the staff and workers employed by me /us.
3. I/We hereby declare that I/We have made myself/ourselves/thoroughly conversant with the local conditions regarding all construction materials such as stone, sand, surkhi, soil, murum, etc. and labour on which I/We have bid my/our rates for this work. The specifications of this work have been carefully studied and understood by me/us before submitting this Tender.
4. I/We hereby undertake to indemnify the Government against all liabilities arising out of application of all labour laws viz. the minimum wages act, ESIS and PF Act etc. with reference to labour engaged on subject work.
5. All leads and lifts charges for the procurement, excavation, utilization and disposal of the various construction materials required are included in the rates of items under the Contract and accepted by me/us unconditionally and it is clear to me/us unconditionally. No claim for lead and lift will be admissible by me/us and I/we give an undertaking that no claim will be submitted by me/us in this regard.
6. I/We will inform our staff about their respective obligations and in particular about their obligations to fulfil this Declaration and to obey the laws of India and State of Maharashtra.

SIGNATURE OF CONTRACTOR

Signature of Contractor

No. of corrections

Executive Engineer

B - 1 TENDER FORM

RURAL DEVELOPMENT DEPARTMENT

Percentage Rate Tender and Contract for Works P.W.D. 286 e

GENERAL RULES AND DIRECTIONS FOR THE GUIDANCE OF CONTRACTORS

1. All work proposed to be executed by Contract shall be notified in a form of Invitation to Tender, pasted on a board hung up in the office of the Executive Engineer and signed by the Executive Engineer.

This form will state the work to be carried out as well as the date for submitting and opening Tenders, and the time allowed for carrying out the work; also the amount of earnest money to be deposited with the Tenderer and the amount of security deposit to be deposited by the successful Tender and the percentage, if any, to be deducted from bills. It will also state whether a refund of quarry fees, royalties, octroi dues and ground rents will be granted. Copies of the specifications designs and drawing and estimated rates, scheduled rates, and any other documents required in connection with the work which will be signed by the Executive Engineer for the purpose of identification shall also be open for inspection by Contractors at the office of the Executive Engineer, Minor Irrigation (local sector) Division, Satara during office hours.

Where the works are proposed to be executed according to the specifications recommended by a Contractor and approved by a competent authority on behalf of the Government of Maharashtra such specification with designs and drawing shall form part of the accepted Tender.

2. In the event of the Tender being submitted by a firm, it must be signed by each partner thereof and in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power-of -attorney authorizing him to do so.

- i) The Contractor shall pay along with Tender **Rs. -----/- (In Word – Rs. ----- only) as and by way of earnest money**. The Contractor may pay the said amount by NEFT or an earnest money exemption certificate. The said amount of earnest money shall not carry any interest whatsoever.

- ii) In the event; of his Tender being accepted, subject to the provisions of sub-clause (iii) below, the said amount of earnest money shall be appropriated towards the amount of Security Deposit payable by him under Condition of General Conditions of Contract.

- iii) If, after submitting the Tender, the Contractor withdraws his offer, or modifies the same or if after, the acceptance of his Tender the Contractor fails or neglects to furnish the balance of security deposit, without prejudice to any other rights and powers of the Governments here-under or in law, Government shall be entitled to forfeit the full amount of the earnest money and the additional earnest money deposited by him.

- iv) In the event of his tender not being accepted, the amount of earnest money deposited by the Contractor shall, unless it is prior there to forfeit under the

provision of Sub-Clause (iii) above, be refunded to him on his passing receipt therefore.

3. Receipts for payments made on account of any work, when executed by a firm, should also be signed by all the partners, except where the Contractors are described in their Tender as a firm, in which case the receipts shall be signed in the name of the firm, by one of the partners or by some other person having authority to give effectual receipts for the firm.
4. Any person who submits a Tender shall fill up usual printed form stating at what percentage he is willing to undertake the work. Tenders which propose any alteration in the work specified in the said form of invitation to Tender or in the time allowed for carrying out the work or which contain any other conditions of any sort, will be liable to rejection. Tender shall have the name and the number of the work to which they refer written outside the envelope.
5. The **Chief Accounts & Finance Officer Z. P. Solapur or his duly authorized assistant will open Tenders** in the presence of intending Contractors who may be present at the time, and will enter the amounts of the several Tenders in a comparative statement in a suitable form. In the event of a Tender being accepted the Contractor shall thereupon for the purpose of identification, sign copies of the specification and other document mentioned in rule. In the event of a Tender being rejected the Divisional Officer shall refund the amount of the earnest money deposited by the Contractor after obtaining a receipt for the return of earnest money.
6. The officer competent to dispose off the Tenders shall have the right of rejecting all or any of the Tenders.
7. No receipt for any payment alleged to have been made by a Contractor in regard to any matter relating to this Tender or the Contract shall be valid and binding on Government unless it is signed by the Executive Engineer.
8. The memorandum of work to be Tendered for and the schedule of the material to be supplied by the Rural Development and Water Conservation Department and their rates shall be filled in and completed by the Office of the Executive Engineer, Minor Irrigation (Local Sector) Div.No.1,Z. P. Solapur before the Tender form is issued. If a form issued to an intending tenderer has not been so filled and completed, he shall request the said office to have this done before he completes, and delivers his Tender.
9. All works shall be measured by net standard measure and according to the rules and custom of the Rural Development and Water Conservation Department without reference to any local custom.
10. Under no circumstances shall any Contractor be entitled to claim enhanced rates for any items in this Contract.
11. A certificate of registration as approved Contractor, in respect of Tenders from registration authority should be produced with the Tender.
12. All corrections, additions or pasted slips should be initialed.
13. The measurements of work will be taken according to the usual method in the Rural Development and Water Conservation Department and no proposals to adopt alternative methods will be accepted. The Executive Engineer's decision as to what is the usual method in use in the Rural Development and Water Conservation Department will be final.

Signature of Contractor

No. of corrections

Executive Engineer

- 14.** The successful tenderer should produce to the satisfaction of the competent authority accepting the Tender a valid and current license issued in his favour under the Contract Labour (Regulation and abolition) Rule 1970, and the Maharashtra Contract Labour (Regulation and abolition Rule) Rule 1971 before starting the work. On failure to do so the acceptance of the Tender will be liable to be withdrawn and also the earnest money will be forfeited to Government.
- 15.** Every tenderer shall submit along with the Tender information regarding the income tax circle or ward of the district in which he is assessed to income tax, the reference to the number of the assessment and the assessment year.
- 16.** The Contractor will have to construct shed at work site for storing controlled and valuable materials having double locking arrangements. The materials will then be taken for use in the presence of the Departmental persons. No materials will be allowed to be removed from the site of works, without prior permission of Engineer-In-Charge.
- 17.** Sale Tax Registration Certificate under sales Tax (Re-enacted Act) 1989 issued by the Sale Tax Department (As per I.D. Circular No. Misc. 1098/3007/1985/981) M.P. (P) Mantralaya. Mumbai. Dt. 13.11.1989) must be submitted in envelope No.1.
- 18.** VAT registration certificate in respect of sale by transfer of property in goods involved in the executions of a work contract under the provision of rule 58 of Maharashtra added tax Act 2005 should be submitted in original or certified copy in envelope No. 1. (5% recovered from those who are unregistered under VAT act 2005.)

TENDER OF WORK

I/We hereby Tender for the execution for the Governor of Maharashtra (here-in-before and here-in-after referred to as “Government”) of the work specified in the under written memorandum within the time specified in such memorandum at _____ (% in words _____) **percent below / above** the estimated rates tendered in Schedule B (memorandum showing items of work to be carried out) and in accordance in all respect with the specifications, design, drawing, and instructions in writing referred to in Rule 1 of General Rules and Direction for Guidance of Contractors and in clause 13 of the annexed Conditions of Contract and agree that when materials for the work are provided by Government such materials and the rates to be paid for them shall be as provided in the Schedule ‘A’ hereto.

MEMORANDUM

- a) General descriptionSpecial Repairs To Percolation Tanks
 @ -----

, Tal. -----, Dist. Solapur.
- b) Estimated **cost** : **Rs. -----/-**
- c) **Earnest money** : **Rs. -----/-**
- d) **Security deposit**
- i) D.D. (not less than the amount of : **Rs. -----/-**
 earnest money) 2.00 %
- ii) To be deducted from current bills 3.00 % : **Rs. -----/-**
- Total (i) + (ii) = : Rs. -----/-**
- e) **Percentage** if any to be deducted from R A bills : **5 %**
 so as to make up the total amount required as
 security deposit by the time half the work as
 measured by the cost is done.
- f) **Time** allowed for the completion of : ----- **calendar months**
 work from date fixed in written order **(including manson)**
 to commence.

Signature of Contractor

No. of corrections

Executive Engineer

Should this Tender be accepted, I/We hereby agree to abide by and fulfill all the terms and provision of Conditions of Contract and Special Conditions of Contract annexed hereto so far as applicable, and in default thereof to forfeit and pay to Government the sums of money mentioned in the said conditions.

I/We agree that this offer shall remain open for acceptance for a minimum period of 90 days from the date Of opening Of II Envelope the same and thereafter until it is withdrawn by me/us by notice in writing duly addressed to the authority opening the Tenders and sent by registered post AD. or otherwise delivered at office of such authority.

D.D.No. _____ of _____ Bank Dated _____ payable @ Solapur to The Chief Accounts & Finance Officer (S.) Z P Solapur of the sum of **Rs. -----/- (Rs. -----)** representing the **earnest money** is herewith forwarded. The amount of earnest money shall not bear interest and shall be liable to be forfeited to the Government should I/ We fail to (1) abide by the stipulation to keep the offer open for the period mentioned above or (2) sign and complete the Contract documents as required by the Engineer and furnish the security deposit as specified in the item (d) of the memorandum contained in paragraph 1 above within the time limit laid down in clause (1) of the annexed General Conditions of Contract. The amount of earnest money may be adjusted towards the security deposit or refunded to me/us if so desired by me us in writing, unless the same or any part thereof has been forfeited as aforesaid.

I/We have secured exemption from payment of earnest money after executing the necessary bond in favour of the Government, a true copy of which is enclosed herewith. Should any occasion for forfeiture of earnest money for this work arise due to failure on my/our part to (1) abide by the stipulation to keep the offer open; for the period mentioned above or (2) sign and complete the Contract documents and furnish the security deposit as specified in item (d) of the memorandum contained in paragraph 1 above within the time limit laid down in clause (1) of the annexed General conditions of Contract the amount payable by me/us may at the option of the Engineer, be recovered out of the amount deposited in lump sum of securing exemption in so for the same may extend in terms of the said bond and in the event of the deficiency out of any other money which are due or payable to me/us by the Government under any other Contract or transaction of any nature whatsoever or otherwise

Signature of Contractor
before submission of Tender - Contractor
Dated the _____ day of _____ 201 Address

Signature of witness (Witness)

Contractor's signature (Address)
(Occupation)

The above Tender is hereby accepted by me for and on behalf of the Governor of Maharashtra.

On dated the ____ day of _____ 201

Signature of the officer by whom accepted.

Signature of Contractor

No. of corrections

Executive Engineer

CONDITIONS OF CONTRACT

CLAUSE - 1: SECURITY DEPOSIT

The person/persons whose tender may be accepted (hereinafter called the contractor) which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators, and assigns) shall

- (A) within 10 days, which may be extended by the **Executive Engineer, concerned**, up to 15 days (if the Superintending Engineer thinks fit to do so) of the receipt by him of the notification of the acceptance of his tender deposit with the Executive Engineer in cash or in Government securities endorsed to the Executive Engineer, (if deposited for more than 12 months) of sum sufficient which will made up the full Security Deposit specified in the tender or permit Government at the time of making any payment to him for work done under the contract to deduct such a bill amount to **Five** percent of all money so payable such deduction to be held by the Government, by way of security deposit, provided always that in the event of the contractor depositing a lump-sum by way of security deposit as contemplated at (A) above, then and in such case, if the sum so deposited shall not amount to **Five** percent of the total estimated cost of the work it shall be lawful for Government at the time of making any payment to the contractor for work done under the contract to make up the full amount of **Five** percent by deducting a sufficient sum on such payment as last aforesaid until the full amount of the Security Deposit is made up. All compensation or other sums of money payable by the contractor to Government under the terms of his contract may be deducted from or paid by the sale of sufficient part of his Security Deposit or from the interest arising there from, or from any sums which may be due or may become due by Government to the contractor under any other contract or transaction of any nature on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid the contractor shall, within ten days thereafter, make good in cash or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or raised by sale of his Security Deposit or any part thereof. The security Deposit referred to, when paid in cash may, at the cost of the depositor, be converted into interest bearing securities provided that the depositor has expressly desired this in writing.

If the amount of the security deposit to be paid in a lump sum within the period specified at (A) above, the tender/contract already accepted shall be considered as cancelled and legal steps taken against the contractor for recovery of the amounts. The amount of the Security Deposit lodged by a contractor shall be refunded along with the payment of the final bill if the date up to which the contractor has agreed to maintain the work in good order, is over. If such date is not over, only 50% amount of Security Deposit shall be refunded along with the payment of the final bill. The amount of Security deposit retained by the Government shall be released after expiry of period up to which the contractor has agreed to maintain the work in good order is over. In the event of the contractor failing or neglecting to complete rectification of work within the period up to which the contractor has agreed to maintain the work in good order, than, subject to provisions of clause- 17 and clause- 20 hereof, the

amount of Security Deposit retained by Government shall be adjusted towards the excess cost incurred by the department on rectification work.

Additional Performance Security Deposit

If the Tenderer quotes a rate less than 10% below , then the Contractor has to furnish the additional Performance security deposit in the form of DD In Favour of Chief Accounts And Finance Officer (Sr) Solapur. Up To 10 % Below Tenders additional Performance security deposit Is 1 % Of Tender Ammount. For Below Tenders, Above 10 %, additional Performance security deposit Is 1 % + % Below Percentage above 10 % . For example, if the Contractor's quoted rate is 15% below, the Contractor has to furnish an additional Performance security deposit procedure mentioned above, (up to 10 % ,1% + For % More Than 10 % (15-10= 5 %)Total 6 %) . Scanned Copy Of DD Of Additional Performance Security Deposit Should Be Uploaded in Envelope No.2 i.e.Financial Envelope C1. DD Should be Submitted To Office Of the Executive Engineer Minor Irrigation (L.S.) Division No.1 Zilla Parishad Solapur in Sealed Pocket by writing Name Of Work On Pocket ,Within 5 Working Days From The Date Of Acceptance of Tender . Pockets of DD Of Bidders ,other Than Lowest 2 Bidders will be returned Within 7 days From Opening Of financial Envelope. Pockets of DD Of 2 nd Lowest Bidder will be returned Within 3 days From Work Order . Work Order Will Be Given To Succesfull Contractor After Clearance Of DD . Additional Performance security deposit will Be Ruterned To Contactor Within 3 Months After satisfactory Completion of work. Additional Performance security deposit of Contractors Furnishing False Documents / DD, Will Be Forefitted & Their Registration Will Be Cancelled Temporarily For 1 Year . (As per Govt. GR (Marathi) सार्वजनिक बांधकाम विभाग शासन निर्णय क बीडीजी २०१६ / प्र.क् .२ / इमा.२ दि.१२/०२/ २०१६).

CLAUSE – 2: COMPENSATION FOR DELAY

The time allowed for carrying out the work as entered in the tender shall be strictly observed by the contractor and shall be reckoned from the date on which the order to commence work is given to the contractor. The work shall, throughout the stipulated period of the contract, be proceeded with, with all due diligence (time being deemed to be the essence of the contract on the part of the contractor) and the contractor shall pay as compensation an amount equal to one percent or such smaller amount as the Superintending Engineer, (whose decision in writing shall be final) may decide, of the amount of the estimated cost of the whole work as shown in the tender for every day that the work remains un-commenced, or unfinished after the proper date. And further to ensure good progress during the execution of the work, the contractor shall be bound in all cases in which the time allowed for any work exceeds one month to complete.

% of the work	% of the time
25%	25%
50%	50%
75%	75%
100%	100%

Signature of Contractor

No. of corrections

Executive Engineer

Note

The quantity of the work to be done within a particular time to be specified above shall be fixed and insured in balance space kept for the purpose by the officer competent to accept the contracts (after taking into consideration the circumstances of each case) and abide by the program of detailed progress laid down by the Executive Engineer (Page No. -----).

The following proportion will usually be found suitable in percentage of the time
 *Reasonable progress of earth work in 1/4, 1/2, 3/4 of the total period 30%, 60%, 95% progress respectively of value of work.

In the event of the contractor failing to comply with this condition he shall be liable to pay, as compensation, an amount equal to one percent or such smaller amount as the **Executive Engineer**, whose decision in writing shall be final, may decide of the estimated cost of the whole work for every day that the due quantity of work remains incomplete.

Provided always that the total amount of compensation to be paid under the provision of this clause shall not exceed 10% of the estimated cost of the work as shown in the tender.

CLAUSE-3: ACTION WHEN WHOLE OF SECURITY DEPOSIT IS FORFEITED

In any case in which under any Clause or Clauses of this contract, the contractor shall have rendered himself liable to pay compensation amounting to the whole of his Security Deposit (whether paid in one sum or deducted by installments) or in case of abandonment of the work, owing to serious illness or death of the contractor or any other cause, the Executive Engineer on behalf of the Government of Maharashtra, shall have power to adopt any of the following courses, he may deem best suited to the interest of Government.

- a) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the Executive Engineer, shall be conclusive evidence) and in that case the Security Deposit of the contractor shall stand forfeited and be absolutely at the disposal of Government.
- b) To carryout the work or any part of the work departmentally debiting the contractor with the cost of the work, expenditure incurred on tools ad plants, and charges on additional supervisory; staff including the cost of work-charged establishment employed for getting the un-executed part of the work completed and crediting him with the value of the work done departmentally in all respect in the same manner and at the same rate as if it had been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to the cost and other allied expenses so incurred and as to the value of the work so done departmentally shall be final and conclusive against the contractor.
- c) To order that the work of the contract be measured up, to take such part thereof, as shall be unexecuted out of his hands and to give it to another contractor to complete, in which case all expenses incurred on advertisement for fixing a new contract / agency, additional supervisory staff including the cost of work-charged establishment and cost of the work executed by the new contract agency will be debited to the contractor and the value of the work done or executed through the new contractor shall be credited to the contractor in all respects and in the same manner and at the same rates as if it has been carried out by the contractor under the terms of his contract. The certificate of the Executive Engineer as to all the cost of the work and other expenses incurred as aforesaid for or in getting the unexecuted work done by

the new contractor and as to the value of the work so done shall be final and conclusive against the contractor.

- d) In case the contract, shall be rescinded under clause (a) above, the contractor shall not be entitled to recover or be paid, any sum for any work therefore actually performed by him under this contract unless and until the Executive Engineer shall have certified in writing the performance of such work and the amount payable to him in respect thereof and he shall only be entitled to be paid the amount so certified. In the event of either of the courses referred to in clause (a) or (c) being adopted and the cost of the work executed departmentally or through a new contractor and other allied expenses exceeding the value of such work credited to the contractor, the amount of excess shall be deducted from any money due to the contractor by government under the contract or otherwise howsoever or from his security deposit or the sale proceeds thereof provided, however, that the contractor shall have no claim against Govt. Even if, the certified value of the work done departmentally or through a new contractor exceeds the certified cost of such work and allied expenses, provided always that whichever of the three courses mentioned in clauses (a), (b) or (c) is adopted by the Executive Engineer, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials, or entered into any engagements, or made any advances on account of, with a view to the execution of the work or the performance of the contract.

CLAUSE-4: ACTION WHEN THE PROGRESS OF ANY PARTICULAR PORTION OF THE WORK IS UNSATISFACTORY

If the progress of any particular portion of the work is unsatisfactory, the Executive Engineer shall notwithstanding that the general progress of the work is in accordance with clause, be entitled to take action under Clause- 3(b), after giving the contractor ten days' notice in writing and the contractor will have no claim for compensation, for any loss sustained by him owing to such action.

CLAUSE-5: CONTRACTOR REMAINS LIABLE TO PAY COMPENSATION IF ACTION NOT TAKEN UNDER CLAUSE- 3

If any case in which any of the powers conferred upon the Executive Engineer by Clause- 3 & Clause-4 hereof shall have become exercisable and the same shall not have been exercised, the non exercise, thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in any future case of default by the contractor for which under any Clause or Clauses hereof he is declared liable to pay compensation amounting to the whole of his Security Deposit and the liability of the contractor for past and future compensation shall remain unaffected.

Power to take a possession of or require removal of or sell contractor's plant

In the event of the Executive Engineer taking, action under sub clause (a) or (c) of clause 3 may, if he so desires, take possession of all or any tools, plant, materials and stores in or upon the work or the site thereof or belonging to the contractor, or procured by him and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account at the contract rates or in the case of contract rates not being applicable at current market rates, to be certified by the Executive Engineer whose certificate thereof shall be final. In the alternative the Executive Engineer may, by notice in writing to the contractor or his clerk of the work, foremen or other authorized agent

require him to remove tools, plant, materials, or stores from the premises within a time specified in such notice, and in the event of the contractor failing to comply with any such requisition, the Executive Engineer, may remove them at the contractor's expense or sell them by auction or private sale at the risk and account of the contractor in all respects; and the certificate of the Executive Engineer as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

CLAUSE-6: EXTENSION OF TIME

If the contractor shall desire an extension of the time for completion of work on the grounds of his having been unavoidably hindered in its execution or on any other grounds, he shall apply in writing to the Executive Engineer before the expiry of the period stipulated in the tender or before the expiration of 30 days from the date on which he was hindered as aforesaid or on which the cause for asking for extension occurred, whichever is earlier and the Executive Engineer may with prior approval of the officer accepting tenders, if in his opinion there are reasonable grounds for granting an extension grant such extension as he thinks necessary or proper. The decision of the Executive Engineer in this matter shall be final.

CLAUSE-7: FINAL CERTIFICATE

On completion of the work the contractor shall be furnished with a certificate by the Executive Engineer (hereinafter called engineer-in-charge) of such completion but no such certificate shall be given or shall the work be considered to be completed until the contractor shall have removed from the premises on which the work shall have been executed all scaffolding, surplus materials and rubbish, and shall have cleaned off the dirt from all woodwork, doors, windows, walls, floor or other parts of any building in or upon which the work has been executed, or of which may have had possession for the purpose of executing the work, not until the work shall have been measured by the engineer-in-charge, or where the measurements have been taken by his subordinates, until they have received the approval of the engineer-in-charge, the said measurements being binding and conclusive against the contractor. If the contractor shall fail to comply with the requirements of this clause as to the removal of scaffolding, surplus materials and rubbish and cleaning of dirt on or before the date fixed for the completion of the work, the engineer-in-charge may, at the expenses of the contractor, remove such scaffolding, surplus materials and rubbish and dispose of the same as he thinks fit and clean off such dirt as aforesaid and the contractor shall forthwith pay the amount of all expenses so incurred, but shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE-8: PAYMENTS ON INTERMEDIATE CERTIFICATE TO BE REGARDED AS ADVANCES

No payment shall be made for any work, estimated to cost less than Rupees one thousand, before whole of the work is completed and a certificate of completion given. But in the case of the works estimated to cost more than Rupees one thousand the contractor shall on submitting a monthly bill thereof, be entitled to receive payment proportionate to the part of the work then approved and passed by the engineer-in-charge, whose certificate of such approval and passing of the sum so payable, shall be final and conclusive against the contractor. All such intermediate payments shall be regarded as

payments by way of advance against the final payments only and not as payments for work actually done and completed, and shall not preclude the engineer-in-charge from requiring bad unsound, imperfect or unskillful work to be removed or taken away and reconstructed or re-erected, nor shall any such payment be considered as an admission of the due performance of the contract or any part thereof in any respect or the accruing of any claim, not shall it conclude, determine or affect in any other way the power of engineer-in-charge as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary or affect the contract. The final bill shall be submitted by the contractor within one month of the date fixed for the completion of the work, otherwise the engineer-in-charge's certificate of the measurements and of the total amount payable for the work shall be final and binding on all parties.

CLAUSE-9: PAYMENT AT REDUCED RATES ON ACCOUNT OF ITEMS OF WORK NOT ACCEPTED AS COMPLETED TO BE AT THE DISCRETION OF THE ENGINEER-IN-CHARGE

The rates for several items of works estimated to cost more than Rs. 1000/- agreed to within, shall be valid only when the item concerned is accepted as having completed fully in accordance with the sanctioned specifications. In cases where the items of works are not accepted as, so completed, the engineer-in-charge may make payment on account of such items at such reduced rates as he may consider reasonable in the preparation of final or on account bills.

CLAUSE-10: BILLS TO BE SUBMITTED MONTHLY

A bill shall be submitted by the contractor in each month or before the date fixed by the engineer-in-charge for all works executed in the previous month, and the Executive-in-charge shall take or cause to be taken the requisite measurements for the purpose of having the same verified and the claim, so far as it is admissible, shall be taken adjusted, if possible, within 10 days from the presentation of the bill. If the contractor does not submit the bill within the time fixed as foresaid, engineer-in-charge may depute a subordinate to measure up to said work in presence of contractor or his duly authorized agent whose counter signature to the measurement list shall be sufficient warrant and the engineer-in-charge may prepare a bill from such list which shall be binding on the contractor in all respects.

CLAUSE-11: BILLS TO BE SUBMITTED ON PRINTED FORMS

The contractor shall submit all bills on the printed forms to be had on application at the office of the engineer-in-charge. The charges to be made in the bills shall always be entered at the rates specified in the tender or in the case of any extra work ordered in pursuance of these conditions, and not mentioned or provided for in the tender, at the rates hereinafter provided for such work.

**CLAUSE-12: STORES SUPPLIED BY GOVERNMENT
DELETED**

CLAUSE-13: WORKS TO BE, EXECUTED IN ACCORDANCE WITH SPECIFICATIONS, DRAWINGS, ORDERS ETC

The contractor shall execute the whole and every part of the work in the most substantial and workman like manner and both as regards materials and in every other respect in strict accordance with specifications. The contractor shall also confirm exactly, fully and faithfully to the designs, drawings and instructions, in writing relating to the

work, i.e. signed by the engineer-in-charge and lodged in his office and to which the contractor shall be entitled to have access for the purpose of inspection, etc., at such office or on the site of work during office hours. The contractor will be entitled to receive three sets of contract drawings and working drawings as well as one certified copy of the accepted tender along with the work order, free of cost. Further copies of contract drawings and working drawings, if required by him shall be supplied at the rate of Rs. 1000/- per set of contract drawing and Rs.120/- per working drawing except where otherwise specified.

CLAUSE-14: ALTERATION IN SPECIFICATIONS AND DESIGNS NOT TO INVALIDATE CONTRACTS

The engineer-in-charge shall have power to make any alterations in, or additions to the original specifications, drawings designs and instructions that may appear to him to be a necessary or advisable during the progress of the work, and the contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by engineer-in-charge and such alteration shall not invalidate the contract and any additional work which the contractor may be directed to do in the manner above specified in the tender for the main work for which no rate is specified in this contract, then such class of work shall be carried out at the rates entered in the schedule of rates of the division or at the rate mutually agreed upon between the engineer-in-charge and the contractor whichever is lower.

Rates for works not entered in estimate or schedule of rates of the district

If the additional or altered work for which no rate is entered in the schedule of rates of the division, is ordered to be carried out before the rates are agreed upon then the contractor shall, within 7 days of the date of receipt by him of the order to carry out the work, inform the engineer-in-charge of the rate which it is his intention to charge for such class of work, and if the engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry it out such class of work and arrange to carry out in such manner as he may consider advisable, provided always that the contractor shall commence work or incur any expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rates or rates as shall be fixed by the engineer-in-charge. In the event of dispute, the decision of the Superintending Engineer of the circle will be final.

Extension of time in consequence of additions or alterations

The time limit for the completion of the work shall be extended in the proportion that the increase in its cost occasioned by alterations or additions bears to the cost of the original contract work and the certificate of the engineer-in-charge as to such proportion shall be conclusive.

CLAUSE-15: NO CLAIM TO ANY PAYMENT OR COMPENSATION FOR ALTERNATION IN OR RESTRICTION WORK

- 1) If at any time after the execution of the contract documents the engineer-in-charge shall for any reason whatsoever (other than default on the part of the contractor for which the Government is entitled to rescind the contract) desires that the whole or any part of the work specified in the tender should be suspended for any period or that the whole or any part of the work should not be carried out at all, he shall give to the contractor a notice in writing of such desire and upon the receipt of such notice the contractor shall forthwith suspend or stop the work wholly or in part as required,

after having due regard to the appropriate stage at which the work should be stopped or suspended, so as not to cause any damage or injury to the work already done or endanger the safety thereof provided that the decision of the engineer-in-charge as to the stage at which the work or any part of it could be or could have been safely stopped or suspended shall be final and conclusive against the contractor. The contractor shall have no claim to any payment or compensation whatsoever by reason of or in pursuance of any notice as aforesaid on account of any suspension, stoppage or curtailment except to the extent specified hereinafter.

- 2) Where the total suspension of work ordered as aforesaid continued for a continuous period exceeding 90 days, the contractor shall be at liberty to withdraw from the contractual obligations under the contract so far as it pertains to the unexecuted part of the work by giving a 10 days prior notice in writing to the Engineer within 30 days of the expiry of the said period of 90 days, of such intention and requiring the Engineer to record the final measurements of the work already done and to pay the final bill. Upon giving such notice the contractor shall be deemed to have been discharged from his obligation to complete the remaining unexecuted work under this contract. On receipt of such notice the Executive Engineer shall proceed to complete the measurements and make such payment as may be finally due to the contractor within a period of 90 days from the work already done by the contractor. Such payment shall not in any manner prejudice the right of the contractor to any further compensation under the remaining provision of this clause.
- 3) Where the engineer-in-charge requires the contractor to suspend the work for a period in excess of 30 days at any time or 60 days in the aggregate, the contractor shall be entitled to apply to the engineer-in-charge within 30 days of resumption of work after such suspension for payment of compensation to the executive tent of pecuniary loss suffered by him in respect of working machinery rendered idle on the site or on account of his having had to pay the salary or wages of labour engaged by him during the said period of suspension, provided always that the contractor shall not be entitled to any claim in respect of any such working machinery, salary or wages for the first 30 days whether consecutive or in the aggregate of such suspension or in respect of any suspension whatsoever occasioned by unsatisfactory work or any other default on his part. The decision of the engineer-in-charge in this regard shall be final and conclusive against the contractor.
- 4) **IN THE EVENT OF**
 - i) Any total stoppage of work on notice from the engineer-in-charge under sub clause (1) in that behalf.
 - ii) Withdrawal by the contractor from the contractual obligation to complete the remaining unexecuted work under sub clause (2) on account of continued suspension of work for a period exceeding 90 days.
 - iii) Curtailment in the quantity of item or items originally tendered on account of any alteration omission or substitutions in the specifications, drawings and designs or instructions under Clause 14 (1) where such curtailment exceeds 25% in quantity and the value of the quantity curtailed beyond 25% at the rate for the items specified in the tender is more than Rs. 5,000/-.

It shall be open to the contractor within 90 days from the service of (i) the notice of stoppage of work or (ii) the notice of the withdrawal from the contractual obligations

under the contract on account of the continued suspension of work or (iii) notice under Clause 14 (1) resulting in such curtailment, to produce the engineer-in-charge satisfactory documentary evidence that he had purchased or agreed to purchase material for use in the contracted work, before receipt by him of the notice of stoppage, suspension, or curtailment and require the government to take over on payment of such material at the rates determined by the engineer-in-charge provided however, such rates shall in no case exceed the rates at which the same were acquired by the contractor. The government shall thereafter take over the material so offered, provided the quantities offered are not in excess of the requirement of the unexecuted works as specified in the accepted tender and are of quality and specification approved by the Engineer. [P. W. & H. Dept. circular memorandum No. CAT 126859382 QI dated 22/2/78.]

CLAUSE-15 (A): NO CLAIM TO COMPENSATION ON ACCOUNT OF LOSS DUE TO DELAY IN SUPPLY OF MATERIALS BY GOVERNMENT

The contractor shall not be entitled to claim any compensation from Government for the loss suffered by him on account of delay by Government in the supply materials entered in Schedule "A" where such delay is caused by

- i) Difficulties relating to supply of railway wagons.
- ii) Force majeure
- iii) Act of God
- iv) Act of enemies of the state or any other reasonable cause beyond the control of Government.

In the case of such delay in the supply of materials Government shall grant such extension of time for the completion of the works as shall appear to the Executive Engineer to be reasonable in accordance with the circumstances of the case. The decision of the Executive Engineer as to extension of time shall be accepted as final by the contractor.

CLAUSE-16: TIME LIMIT FOR UNFORESEEN CLAIMS

Under no circumstances, whatsoever, shall the contractor be entitled to any compensation from Government on any account unless the contractor shall have submitted a claim in writing to the engineer-in-charge within one month of the cause of such claim occurring.

CLAUSE-17: ACTION AND COMPENSATION PAYABLE IN CASE OF BAD WORK

If at any time before the security deposit or any part thereof is refunded to the contractor it shall appear to the engineer-in-charge or his subordinate in charge of the work, that any work has been executed with unsound/imperfect or unskillful workmanship or with materials of inferior quality or that any materials or articles provided by him for the execution of the work are unsound, or of a quality inferior to that contracted for, or are otherwise not in accordance with the contract, it shall be lawful for the engineer-in-charge to intimate this fact in writing to the contractor and then notwithstanding the fact that the work, materials or articles complained of may have been inadvertently passed, certified and paid for, the contractor shall be bound forthwith to rectify, or remove and reconstruct the work so specified in whole or in part, as the case may require or if so required, shall remove the materials or articles so specified and provide other proper and suitable

materials or articles at his own charge and cost and in the event of his failing to do so within a period to be specified by the engineer-in-charge in the written intimation aforesaid, the contractor shall be liable to pay compensation at the rate of one percent on the amount of the estimate for every day not exceeding 10 days, during which the failure so continuous and in the case of any such failure the engineer-in-charge may rectify or remove and re-execute the work or remove and replace the materials or articles complained of as the case may be at the risk and expense in all respects of the contractor. Should the engineer-in-charge consider that any such inferior work or materials as described above may be accepted or made use of it shall be within the discretion to accept the same at such reduced rates as he may fix therefore.

CLAUSE-18: WORK TO BE OPEN TO INSPECTION. CONTRACTOR OR RESPONSIBLE AGENT TO BE PRESENT

All works under or in course of execution or executed in pursuance of the contract shall at all times be open to the inspection and supervision of the engineer-in-charge and his subordinates, and the contractor shall at all times during the usual working hours, and at all other times at which reasonable notice of the intention of the engineer-in-charge or his subordinate to visit the works shall have been given to the contractor, either himself, be present to receive orders and instructions or have responsible agent duly accredited in writing present for that purpose. Orders given to the contractor's duly authorized agent shall be considered to have the same force and effect as if they had been given to the contractor himself.

CLAUSE-19: NOTICE TO BE GIVEN BEFORE WORK IS COVERED UP

The contractor shall give not less than five days' notice in writing to the engineer-in-charge or his subordinate in charge of the work before covering up or otherwise placing beyond the reach of measurements any work in order that the same may be measured, and correct dimensions thereof taken before the same is so covered, up or placed beyond the reach of measurements and if any work, shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained the same shall be uncovered at the contractor's expenses and in default thereof no payment or allowance shall be made for such work or for the materials with which the same was executed. [PWH Department Mumbai's circular No CAT 1270/2632 Desk-2 dated 09/05/1977.]

CLAUSE-20: CONTRACTOR LIABLE FOR DAMAGE DONE AND FOR IMPERFECTIONS

If during the period of 24 months from the date of completion as certified by the engineer-in-charge pursuant to Clause 7 of the contract or 36 months after commissioning the work, whichever is earlier in the opinion of the Executive Engineer, the said work is defective in any manner whatsoever, the contractor shall forthwith on receipt of notice in that behalf from the Executive Engineer, duly commence execution and completely carry out at his cost in every respect all the work that may be necessary for rectifying and setting right the defects specified therein including dismantling and reconstruction of unsafe portions strictly in accordance with and in the manner prescribed and under the supervision of the Executive Engineer. In the event of the contractor failing or neglecting to commence execution of the said rectification work within the period prescribed therefor, in the said notice and or to complete the same as aforesaid as required by the said notice, the Executive Engineer get the same executed and carried out departmentally or by any other agency at the risk on account and at the cost of the contractor. The contractor

shall forthwith on demand pay to the Government the amount of such cost, charges and expenses sustained or incurred by the Government of which certificate of the Executive Engineer shall be final and binding on the contractor. Such costs, charges and expenses shall be deemed to be arrears of land revenue and in the event of the contractor failing or neglecting to pay the same on demand as aforesaid without prejudice to any other rights and remedies of the Government; the same may be recovered from the contractor as arrears of land revenue. The Government shall also be entitled to deduct the same from any amount which may then be payable or which may therefore become payable by the Government to the contractor either in respect of the said work or any other work, whatsoever or from the amount of security deposit retained by Government.

CLAUSE-21: CONTRACTORS TO SUPPLY PLANT, LADDERS, SCAFFOLDINGS, ETC.

The contractor shall supply at his own cost all materials (except such special materials, if any, as may, be supplied from the **Rural Development Department Stores** in accordance with the contract) plant, tools appliances, implements, ladders, cordage, tackle, scaffolding and any temporary works which may be required for the proper execution of the work, in the original, alternate or substituted form and whether included in the specifications, other documents forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with requirements of the engineer-in-charge as to any matter on which under these conditions he is entitled to be satisfied, or which he is entitled to require together with carriage therefore to and from the work

The contractor shall also supply without charge the requisite number of persons with the means and materials necessary for the purpose of setting out works, and counting, weighing and assisting in the measurements or examination at any time and from time to time of the work or the materials, failing this the same may be provided by the engineer-in-charge at the expense of the contractor and the expense may be deducted from any money due to the contractor under the contract from his security deposit or the proceeds of sale thereof or of a sufficient portion thereof contractor is liable for damages arising from non-provision of lights, fencing etc. The contractor shall provide all necessary fencing and lights required to protect the public from accident, shall also be bound to bear the expenses of defense of every suit, action or other legal proceedings, at law, that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit action in proceedings to any such person, or which may with the contractor be paid in compromising any claim by any such person.

CLAUSE-21 (A):

The contractor shall provide suitable scaffolds and working platform, gangways and stairways and shall comply with the following regulation in connection therewith.

- a) Suitable scaffolds shall be provided for workmen for all works that cannot be safely done from a ladder or by other means
- b) A scaffold shall not be constructed, taken down, or substantially altered except.
 - i) Under the supervision of a competent and responsible person and
 - ii) As far as possible by competent workers possessing adequate experience in this kind of work.
- c) All scaffolds and appliances connected therewith and all ladders shall.

- i) be of sound material
- ii) be of adequate strength having regard to the loads and strains to which they will be subjected and
- iii) be maintained in proper condition
- d) Scaffolds shall be so constructed that no part thereof can be displaced in consequence of normal use.
- e) Scaffolds shall not be over-loaded and so far as practicable the load shall be evenly distributed.
- f) Before installing lifting gear on scaffolds special precautions shall be taken to ensure the strength and stability of the scaffolds.
- g) Scaffolds shall be periodically inspected by competent persons.
- h) Before allowing a scaffold to be used by his workmen the contractor shall, whether the scaffold has been erected by his workmen or not, take steps to ensure that it complies fully with the regulations here-in-specified.
 - i) Working platforms gangways and stairways shall
 - ii) be so constructed that no part thereof can sag unduly or unequally
 - iii) be so constructed and maintained having regard to the prevailing conditions as to reduce as far as practicable risk or persons and stripping or slipping, and iv) be kept free from any unnecessary obstruction
- i) In the case of the working platforms, gangways or working places and stair ways at a height exceeding (To be specified) 3 meters.
 - i) Every working platform and every gangway shall be closely boarded unless other adequate measure is taken to ensure safety.
 - ii) Every working platform, gangway working place and stairways shall be suitably fenced.
- k) Every opening in the floor of a building or in working platform shall, except for the time and to the extent required to allow the access of persons or the transport of shifting of materials, be provided with suitable means to prevent the fall of persons or materials.
- l) When persons are employed on a roof where there is a danger of falling from a height exceeding 3 meters, suitable precautions (to be prescribed) shall be taken to prevent the fall of persons or materials.
- m) Suitable precautions shall be taken to prevent persons being struck by articles which might fall from scaffolds or other working places.
- n) Safe means of access shall be provided to all working platforms and other working places.
- o) The contractor(s) will have to make payments to the labours as per Minimum Wages Act.

CLAUSE- 21 (B):

The contractor shall comply with the following regulations as regards the hoisting appliances to be used by him.

- a) Hoisting machines and tackle, including their attachments anchorages and supports shall
 - i) be of good mechanical constructions, sound material and adequate strength and free from patent defect and
 - ii) be kept in good repairs and in good working order.

- b) Every rope used in hoisting for lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defect
- c) Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and be re-examined in position at intervals to be prescribed by the Government.
- d) Every chain, ring, hook shackle, swivel and pulley block used in hoisting or lowering materials or as a mean of suspension shall be periodically examined.
- e) Every crane driver or hoisting appliance operator shall be properly qualified.
- f) No person who is below age of 18 years shall be in control of any hoisting machine, including any scaffold which, or give signals to the operator.
- g) In the case of hoisting machine and of every chain, ring, hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension the safe working load shall be ascertained by adequate means.
- h) Every hoisting machine and all gear referred to in preceding regulation shall be plainly marked with safe working load.
- i) In the case of a hoisting machine having a variable safe working load each safe working load and the conditions under which it is applicable shall be clearly indicated.
- j) No part of any hoisting machine or of any gear referred to in regulation g) above shall be loaded beyond the safe working load except for the purpose of testing.
- k) Motors gearing, transmissions, Electric wires and other dangerous part of hoisting appliances, shall be provided with efficient safeguards.
- l) Hoisting appliances shall be provided with such means as will reduce to a minimum the risk of the accidental decent of the load.
- m) Adequate precautions shall be taken to reduce to a minimum the risk of any part of a suspended load becoming accidentally displaced.

CLAUSE-22: MEASURE FOR PREVENTION OF FIRE

The contractor shall not set fire to any standing jungle trees, grass without a written permit from the Executive Engineer when such permit is given and also in cases when destroying out or dug up trees brush woods, grass, etc. by fire, the contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property. The contractor shall make his own arrangements for drinking water for the labour employed by him and provide sanitary and other arrangements.

CLAUSE-23: LIABILITY OF CONTRACTORS FOR ANY DAMAGE DONE OR OUTSIDE WORK AREA

Compensation for all damage done intentionally or unintentionally by contractors, labour whether in or beyond the limits of Government property including any damage caused by the spreading of fire mentioned in clause 22 shall be estimated by the engineer-in-charge or such other officer as he may appoint and the estimates of the engineer-in-charge subject to the decision of the Superintending Engineer on appeal shall be final and contractor shall be bound to pay the amount of the assessed compensation on demand failing which the same will recovered from the contractor as damages in the manner prescribed in clause 1 or deducted by the engineer-in-charge from any sums that may be due or become due from Government to the contractor under this contract or otherwise.

The contractor shall bear the expenses of defending any action or other legal proceedings that may be brought by any person for injury sustained by him owing to neglect of precautions to prevent the spread of fire and he shall pay any damages and cost that may be awarded by the court in consequences.

CLAUSE-24: EMPLOYMENT OF FEMALE LABOUR

The employment of female labours on works in the neighborhood of soldier's barracks should be avoided as far as possible.

CLAUSE-25: WORK ON WEEKLY HOLIDAYS

No work shall be done on holydays without sanction in writing of the engineer-in-charge

CLAUSE-26: WORK NOT TO SUBLET, CONTRACT MAY BE RESCINDED AND SECURITY DEPOSIT FORFEITED FOR SUBLETTING IT WITHOUT APPROVAL OR FOR BRIBING A GOVERNMENT OFFICER OR IF CONTRACTOR BECOMES INSOLVENT

The contract shall not be assigned or sublet without the written approval of the engineer-in-charge. Contract may be rescinded and security deposit forfeited if subletting is with approval or for bribing a public officer or if contractor becomes insolvent, and if the contractor shall assign or sublet his contract, or attempt so to do or become insolvent or commence any proceeding to be adjudicated an insolvent or make any composition with his creditors, or attempt so to do the engineer-in-charge may by notice in writing, rescind the contract. Also if any bribe, gratuity, gift, loan, perquisite reward or advantage pedantry or otherwise, shall either directly or indirectly be given, promised, or offered by the contractor or any of his servants or agents to any public officer or person in the employment of Government in any way relating to his office of employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract the engineer-in-charge may by notice in writing rescind the contract. In the event of a contract being rescinded the security deposit of the contractor shall thereupon stand forfeited and be absolutely at the disposal of Government and the same consequences shall ensure as if the contract had been rescinded under clause 3 hereof & in addition the contractor shall not be entitled to recover or be paid for any work therefore actually performed under the contract.

CLAUSE-27: SUM PAYABLE BY WAY OF COMPENSATION TO BE CONSIDERED AS REASONABLE COMPENSATION WITHOUT REFERENCE TO ACTUAL LOSS

All sums payable by contractor by way of compensation under any of these shall be considered as a reasonable compensation to be applied to the use of government without reference to the actual loss or damage sustained and whether any damage has or has not been sustained.

CLAUSE-28: CHANGES IN THE CONSTITUTION OF FIRM TO BE NOTIFIED

In the case of tender by the partners any change in the constitution of the firm shall be forthwith notified by the contractor to the engineer-in-charge for his information.

CLAUSE-29: WORK TO BE UNDER DIRECTION AND CONTROL OF SUPERINTENDING ENGINEER

All works to be executed under the contract shall be executed under the direction and control and subject to the approval in all respects of the Superintending Engineer of the Circle for the time being, who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time, carried on.

CLAUSE-30**1) DECISIONS OF SUPERINTENDING ENGINEER TO BE FINAL**

Except where otherwise specified in the contract and subject to the powers delegated to him by Government under the code rules then in force the decision of the Superintending Engineer of circle for the time being shall be final, conclusive and binding on all parties to the contract upon all questions relating to the meaning of the specifications, designs, drawing and instructions, herein before mentioned and as to the quality of workmanship or materials used on the work or as to any other question, claim, right, matter or thing whatsoever, in any way arising out of or relating to the contracts, designs, drawings, specifications, estimates, instructions, orders or these conditions, or otherwise concerning the work, or the execution, or failure to execute the same whether arising, during the progress of the work, or after the completion or abandonment thereof.

- 2) The contractor may within thirty days of receipt by him of any order passed by the Superintending Engineer of the Circle as aforesaid appeal against it to the Chief Engineer concerned with the contract, work or project, provided that:
 - a) The accepted value of the contract exceeds Rs. 10 lakhs (Rupees Ten lakhs)
 - b) Amount of claim is not less than Rs. 1.00 lakh (Rupees One lakh)
- 3) If the contractor is not satisfied with the order passed by the Chief Engineer as aforesaid the contractor may, within thirty days of receipt by him of any such order, appeal against it to the concerned Secretary, Rural Development Department, who if convinced, that prima-facie the contractor's claim rejected by Superintending Engineer/Chief Engineer is not frivolous and that there is some substance in the claim of contractor as would merit a detailed examination and decision by the Standing Committee, shall order to put up to the same to the Standing Committee at the Government level for suitable decision.

**CAUSE-31: STORES OF EUROPEAN OR AMERICAN MANUFACTURE TO BE OBTAINED FROM GOVERNMENT
DELETED**

CLAUSE-32: LUMP SUMS IN ESTIMATES

When the estimate on which a tender is made includes lump sum in respect of the of the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items; or if the part of the work in question is not in the opinion of the engineer-in-charge capable of measurement the engineer-in-charge may at his discretion pay the lump sum amount entered in the estimate, and the certificate in writing of the engineer-in-charge shall be final and conclusive against the contractor with regard to any sum or all sums payable to him under the provision of this clause.

CLAUSE-33: ACTION WHERE NO SPECIFICATIONS

In the case of any class of work for which there is no such specification as is mentioned in rule 1, such work shall be carried out in accordance with divisional specifications and in the event of there being no divisional specifications then in such case the work shall be carried out in all respects in all respects with the instructions and requirements of the engineer-in-charge.

CLAUSE-34: DEFINITION OF WORK

The expression "works" or "work" where used in these conditions, shall unless there be something in the subject or context repugnant to such construction, be constructed to mean the work or works contracted to be executed under or in virtue of the contract, whether temporary or permanent and whether original, altered substituted or additional.

CLAUSE-35

Contractor's percentage whether applied to net or gross amounts of bill, the percentage referred to in the tender shall be deducted from / added to the gross amount of the bill before deducting the value of any stock issued. [As per G. R. P. W. D. No. CAT/1080/CR-330 Bldg-2 dated 10/06/87]

CLAUSE-36: REFUND OF QUARRY FEES AND ROYALTIES

All quarry fees, royalties, octroies dues and ground rent for stacking materials, if any should be paid by the contractor. (As per PWD GR No. सं ११ / ०२ / ०५ / (२९१) इमारती २, मंत्रालय, मुंबई -३२, दि. ११/०९/२००३)

CLAUSE- 37: COMPENSATION UNDER WORKMEN'S COMPENSATION ACT

The contractor shall be responsible for and shall pay any compensation to his workmen payable under the Workmen's Compensation Act, 1923 (VIII of 1923) (hereinafter called as the said act), for Injuries caused to the workmen If such compensation is payable and/or paid by Government as principal employer under sub section (1) of section 12 of the said act on behalf of the contractor, it shall be recoverable by Government from the contractor under sub-section (2) of the said section. Such compensation shall be recovered in the manner laid down in clause 1 above.

CLAUSE- 37 (A)

The contractor shall be responsible for and shall pay the expenses of providing medical aid any workmen who may suffer a bodily injury as a result of an accident. If such expenses are incurred by Government the same shall be recoverable from the contractor forthwith and be deducted without prejudice to any other remedy of Government from any due that may become due to the contractor.

CLAUSE- 37 (B)

The contractor shall provide all necessary personal safety equipment and first aid apparatus available for the use of persons employed on the site, shall maintain the same in condition suitable for immediate use at any time and shall comply with the following regulations in connection therewith

- a) The workers shall be required to use the equipment so provided by the contractor and the contractor shall take adequate steps to ensure proper use of the equipment by those concerned.
- b) When work is carried on in proximity to any place where there is a risk of drowning all necessary equipment shall be provided and kept ready for use and all necessary steps shall be taken for the prompt rescue of any person in danger.
- c) Adequate provisions shall be made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

CLAUSE-37 C

The contractor shall duly comply with the provisions of "The Apprentices Act 1961" (III) of 1961 the rules made there under and the orders that may be issued from time

to time under the said Act and the said Rules and on his failure or neglect to do so he shall be subject to all the liabilities and penalties provided by the said Act and said Rules". [Vide circular No. CAT/6076/3336 (400)Bldg-2 Dt. 16.08.85.]

CLAUSE-38: CLAIM FOR QUANTITIES OF WORK IN THE TENDER

- 1) Quantities in respect of the several items shown in the tender are approximate and no revision in tender rate shall be permitted in respect of any of the items so long as subject to any special provision, contained in the specifications prescribing a different percentage of permissible variation; the quantity of the item does not exceed the tendered quantity by more than 125% and so long as the value of the excess quantity beyond this limit at the rate of the item specified in the tender, is not more than Rs. 5000/- [(PW & H Department Resolution No. CAT 1268/59382 Q dated 14/3/1974).]
- 2)
 - (i) The contractor shall if ordered in writing by the Engineer so to do, also carry out quantities in excess of the limit mentioned in sub clause (i) hereof on the same condition as and in accordance with the specification in the tender and at the rates (i) derived from the rates entered in the current schedule of rates and in the absence of such rates
 - (ii) At the rates prevailing in the market. The said rates being increased or decreased as the case may be, by percentage which the total tendered amount bears to the estimated cost of the work as put to tender based upon the schedule of rates applicable to the year in which the tenders were invited; for the purpose of operation of this clause this cost shall be **Rs. -----/- only. (Rupees -----/- only.)**
- 3) Claims arising out of reduction in the tendered quantity of any item beyond 25 percent will be governed by the provision of clause - 15 only when the amount of such reduction beyond 25% at the rate of the item specified in the tender is more than Rs. 5000/-

CLAUSE-39: EMPLOYMENT OF FEMINE OR OTHER LABOUR

The contractor shall employ any feminine, convict or other labour of a particular kind or class if ordered in writing to do so by the engineer-in-charge.

CLAUSE-40: CLAIM FOR COMPENSATION FOR DELAY IN STARTING THE WORK

No compensation shall be allowed for any delay caused in the starting of the work on account of any acquisition of land and in the case of clearance works, for any delay in according sanction to estimate.

CLAUSE-41: CLAIM FOR COMPENSATION FOR DELAY IN THE EXECUTION OF WORK

No compensation shall be allowed for any delay in the execution of the work on account of water standing in borrows pits or compartments. The rates are inclusive for hard or cracked soil excavation in mud, sub soil, water or water standing in borrows pits and no claim for an extra rate shall be entertained unless otherwise expressly specified

CLAUSE-42: ENTERING UPON OR COMMENCING ANY PORTION OF WORK

The contractor shall not enter upon or commence any portion of work except with the written authority and instructions of the engineer-in-charge or his subordinates in charge

of work; failing such authority the contractor shall have no claim to ask for measurements or payment for work.

CLAUSE-43: MINIMUM AGE OF PERSONS EMPLOYED, THE EMPLOYMENT OF DONKEYS AND OTHER ANIMALS

- i) Contractor shall not employ any person who is under the age of 18 years.
- ii) No contractor shall employ donkeys or other animals with breaching of string or thin rope. The breaching must be at least 7.5 cm. wide and should be of tape (Nawar).
- iii) No animals suffering from sores, lameness or emaciation which his immature shall be employed on the work
- iv) The engineer-in-charge or his agent is authorized to remove from the work any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by Govt. for any delay caused in the completion of the work by such removal.
- v) The contractor shall provide drinking water facilities to the workers, similar amenities shall be provided to the workers engaged on large work in urban area.

CLAUSE-44: METHOD OF PAYMENT

Payment to contractors shall be made by cheques drawn on any treasury within the Division convenient to them, provided the amount exceeds Rs. 10/-. Amounts not exceeding Rs. 10/- will be paid in cash.

CLAUSE-45: ACCEPTANCE OF CONDITIONS COMPULSORY BEFORE TENDERING FOR WORK

Any contractor who does not accept these conditions shall not be allowed to tender for works.

CLAUSE-46: EMPLOYMENT OF SCARCITY LABOUR

If Government declares a state of scarcity or famine to exist in village situated within 16 km of the work, the contractor shall employ upon such parts of the work, as are suitable for unskilled labour, any person certified to him by the Executive Engineer or by any person to whom the Executive Engineer may have delegated this duty in writing to be in need of relief and shall be bound to pay to such persons wages not below the minimum which Government may have fixed in this behalf. Any disputes which may arise in connection with the implementation of this clause shall be decided by the Engineer-in-Charge whose decisions shall be binding on contractor.

CLAUSE-47

The price quoted by the contractor shall not in any case exceed the control price, if any, fixed by Government or reasonable price which is permissible for him to charge a private purchaser for the same class and description of goods under the provisions of Hoarding and Profiteering Prevention Ordinance, 1948, as amended from time to time. If the price quoted exceeds, the contractor will specifically mention this fact in his tender along with the reasons for quoting such highest price. The purchaser at his discretion will in such case exercise the right of revising the price at any stage so as to conform to the controlled price on the permissible under the Hoarding and Profiteering Prevention Ordinance. These declarations will be exercised without prejudice to any other action that may be taken against the contractor.

CLAUSE-48

The Contractor shall employ the unskilled labour to be employed by him on the work only from locally available labours and shall give preference to those persons enrolled

under Maharashtra Government and self Employment Department's Scheme. Provided, however, that if the required unskilled labours are not available locally, contractor shall in the first instance employ such number of persons as is available may with previous permission in writing of the Executive engineer-in-charge of said work obtain the rest of requirement of unskilled labour from outside the above scheme. (As per शासन निर्णय . सीएटी १०९७ / प्र. . ४७८ / इमारत-२, मुंबई, दि. २३/३/१९९८)

CLAUSE-49

Where workers are required to work near machine etc. and are liable to accidents, they should not be allowed to wear loose clothes like Dhoti-Jhabba, etc.

CLAUSE-50

In case of material that remains surplus with the contractor from those issued for the work contracted for the date of ascertained of the materials being surplus will be taken as the date of sale for the purpose of sale tax and sale tax will be recovered on such sale.

CLAUSE-51

The contractors are bound to pay the labours, according to the minimum wages Act, 1948 as amended from time to time, applicable to the zones in accordance with the order issued in Govt. PWD "Circular No. NWS-10 dated 5/12/1958. Any differentiation in the type of zone shall not entitle the contractor for any claims.

CLAUSE-52

The contractor/s has/ have to furnish income tax clearance certificate before his tender is accepted and income tax assessment No. and date on which he / they is / are assessed should be given.

CLAUSE-53

The contractor shall duly comply with all the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 (37 of 1970) and the Maharashtra Contract Labour (Regulation and Abolition) Rules, 1971 as amended from time to time and all other relevant statutes and statutory provisions concerning payment of wages, particularly to workmen employed by the contractor working on the site of the work. In particular the contractor shall pay wages to each worker employed by him on the site of the work at the rates prescribed under the Maharashtra Contract Labour (Regulation and Abolition) rules 1971. If the contractor fails or neglects to pay wages at the said rates or makes short payment and the Government makes such payment of wages in full or part thereof less paid the contractor, as the case may be the amount so paid by the Government to such workers shall be deemed to be arrears of land revenue and Government shall be entitled to recover the same as such from the contractor or deduct the same from the amount payable by the Government to the contractor here under or from any other amounts payable to him by the Government (Minimum wages act as per Govt. circular No. CAT-1284 (120)/Bldg. 2. Dt. 14.8.85)

CLAUSE-54

The Rate to be quoted by the contractor must be inclusive of Sale Tax. No extra payment on this account will be made to the contractor.

CLAUSE-55

All amounts whatsoever which the contractor is liable to pay to the Government in connection with the execution of the work including the amount payable in respect of (i) Material and or stores supplied/issued here under, (ii) Charges in respect of heavy plant machinery and equipment given on hire by the Government to the contractor for execution

by him of the work and or on which advances have been given by the Government to the contractor shall be deemed to be arrears of the Land Revenue and the Government may without prejudice to any other rights and remedies of the Government recover the same from contractor as arrears of land revenue, (vide P.W. & H. Dept No. CAT/1274/4064/DESK-2 dated 7/12/1976).

CLAUSE-56

The contractor shall engage apprentice such as brick layer, carpenter, wireman, Plumber as well as blacksmith as recommended by the State Apprenticeship Advisor Director for Technical Education, Dhobi Talao, Mumbai-1 on the Construction work. (As per Govt. of Maharashtra Education Department No.TSA/5170 T 46689 Dated 7/7/72).

CLAUSE-56 (A)

A contractor shall comply with the provisions of the Apprentices Act at, 1961 under rules orders issued from time to time. If he fails to do so his failure will be a breach of the contract and the Superintending Engineer, may in his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability rising on account of any violation by him of the provision of the Act. (NO. AT S7107/T/447125 DATED 20/7/1976 of Director of Technical /Education an Sate Apprenticeship adviser M. S. Mumbai.)

CLAUSE-57: SALE TAX / VAT

The tendered rate shall be inclusive of all taxes, and ceases and shall also be inclusive of the levies in respect etc., of works contract under the provisions of the Maharashtra Sales Tax on transfer of property in goods involved in the execution of Works Contract Act, 1985 (Maharashtra Act No. XXVL of 89) As per GR. PWD No CAT/1096/CR-172 Bldg-2 dated 20.04.1998) VAT @ 2% of the gross value of the work done should be deduct from the R.A. Bills and 5 % shall be deducted from those who are not registered under VAT (As per G.R. PWD No. B.D.G.2005 / CR-324 / building -2, Mantralaya, Mumbai, Dated 3 March 2006).

CLAUSE-58: ANTI-MALARIA

- A) The anti-malaria and other health measures shall be as directed by the Joint Director (Malaria and Filaria) of Health Service, Pune.
- B) Contractor shall ensure that mosquitogenic conditions are not created so as to keep vector population to minimum level.
- C) Contractor shall carry out anti-malaria measures in the area as per guidelines prescribed under National Malaria Eradication programme and as directed by the Joint Director (M & F) of Health Service, Pune.
- D) In case of default in carrying out prescribed anti malaria measures resulting in increase in malaria incident contractor shall be liable to pay to Government on anti malaria measures to control the situation in addition to fine.

E) Relations with Public Authorities

The contractor shall make sufficient arrangements for draining ways the sullage water as well as water coming from the bathing land, washing places and shall dispose off this water in such a way as not to cause any substance. He shall also keep the premise clean by employing sufficient number of sweepers.

The contractor shall comply with all rules, regulations, bye-laws and directions given from 'time to time by any local of public authority in connection with this work and shall pay fees or charges which available on him without any extra cost to

Government. (As per Govt. of Maharashtra PW Dept. Circular No. CAT/1086/CR-243/D Blg- Dated 11/9/87).

CLAUSE-59

The work is likely to be in progress departmentally and quantity put to tender shall be reduced to the extent of the work is done by Department up to the date of starting the work by the contractor. No clam due to deduction in quantity on this account will be entertained.

CLAUSE-60

शासनाच्या / शासनाच्या अंगीकृत उपक्रमाच्या संबंधातील कंत्राटांच्या संदर्भात कामगार भविष्य निर्वाह निधी अधिनियमातील तरतूदीनुसार कंत्राटदाराला नोंदणीकृत असणे जरूरीचे आहे. तसेच कामगार भविष्य निर्वाह निधी अधिनियमानुसार त्यांनी भविष्य निर्वाह निधीत आवश्यक तो भरणा केलेला आहे किंवा कसे याबाबत सक्षम अधिकाऱ्यांचे आवश्यक ते प्रमाणपत्र सादर करणे जरूरीचे आहे.

CLAUSE-61: CONDITION RELATING TO INSURANCE OF CONTRACT WORKS

The contractor shall take out necessary Insurance Policy / Policies (viz. Contractor's All Risks Insurance Policy, Erection All Risk Insurance Policy, as decided by the directorate of Insurance) so as to provide adequate insurance cover for execution of the awarded contract work for total contract value and complete contract period COMPULSORILY from the Directorate of Insurance, Maharashtra State, Mumbai only. Its postal address for correspondence is 264, MHADA first floor, Opp. Kalanagar, Bandra (East), Mumbai-51. (Telephone No. 022-26590403 / 26590690 and Fax No. 022-26592461 / 26590403) Similarly, all workmen appointed to complete the contract work are required to insure under workmen's compensation insurance policy taken out from any other company will not be accepted. If any contractor has not taken out the insurance policy from the Directorate of Insurance, Maharashtra State, Mumbai or has effected insurance with any insurance company, the same will not be accepted and 1% of the tender amount or such amount of premium calculated by the Government Insurance Fund will be recovered directly from the amount payable to the contractor for the executed contract work and paid to the Directorate of Insurance, Maharashtra State, Mumbai. Directorate of Insurance reserves the right to distribute the risks of insurance among the other insurers.

CLAUSE- 62 उपकर

महाराष्ट्र शासन, उद्योग, ऊर्जा व कामगार विभाग, मंत्रालय, मुंबई यांचे पत्र जा. क्र. बीजीए - (इमारत) २००९ / प्र.क्र. १०८ / कामगार -७ अ, दि. ३/७/२०१० व शासन बांधकाम सार्वजनिक बांधकाम विभाग, मंत्रालय मुंबई यांचेकडील जा.क्र. संकीर्ण १० / ०९ / प्र.क्र. २७७ / इमारती २, दि. १७/८/२०१० अन्वये इमारत व इतर बांधकाम कामगार कल्याण उपकर अधिनियम १९९६ मधील तरतूदीच्या अनुषंगाने राज्यामध्ये एक टक्का उपकर खाजगी व शासकीय बांधकामाच्या एकुण मुल्यानुसार (जमीनीचे मुल्य वगळून) तसेच संबंधीत आस्थापनेने कामगारांना किंवा त्यांच्या नातलगांना कामगारांसाठी नुकसान भरपाई अधिनियम १९२३ मधील तरतूदीनुसार कोणत्याही प्रकारची भरपाई दिलेली असेल ती रक्कम वगळून उर्वरित बांधकाम मुल्यांवर एक टक्का उपकर वसूल करण्यात येईल.

Schedule showing (approximately) the materials to be supplied from the Government's store for the work contracted to be executed and preliminary and ancillary works, and the rates at which they are to be charged for.

Name of Work : **Special Repairs To Percolation Tanks @ -----**

, Tal. -----, Dist. Solapur.

Particulars	Rate at which the material will be charged to be the Contractor		Place of delivery
	Unit	Rate	
1	2	3	4
	----- NIL -----		

- Note :**
- 1) All the materials including cement and steel are to be procured by the Contractor. The Department will not arrange for supply of any materials.
 - 2) The materials bought by the Contractor will be got tested and the expenditure of Testing shall be borne by the Contractor and only the materials found to comply with the specification shall be allowed to be used on the work.

Sd/-
Executive Engineer
Minor Irrigation (Local Sector) Div.No.1,
Z. P. Solapur.

Signature of Contractor

No. of corrections

Executive Engineer

Name of Work :- Special Repairs To Percolation Tanks at -----

Taluka -----

Dist : Solapur

SCHEDULE- B 1

Attached Seprately

Signature of Contractor

No. of corrections

Executive Engineer

APPENDIX III B

PROGRAMME OF WORKS TO BE CARRIED OUT UNTILL COMPLETION

Name of work - Special Repairs To Percolation Tanks @ -----**Tal. -----, Dist. Solapur.**

Sr. No.	Item of work	Tender Quantity	I St Week	II Week	III Week	IV Week
1	2	3	4	5	6	7
1	Cleaning					
2	Removing Pitching					
3	Excavation in All Strata					
4	Cot Filling Embankment					
5	Hearting Berm					
6	Casing Berm					
7	Shrunked Embankment					
8	Pitching					
9	Dismantalling Stone Masonary					
10	Form Work					
11	M S Reinforcement					
12	RCC M-15 1:2:4					
13	Desiltation Of Toe Drain					
14	Name Board					

Signature of Contractor

No. of corrections

Executive Engineer

GENERAL SPECIFICATIONS FOR THE WORK OF

**Completing Balance Work Of Percolation Tank No. ----- @ -----
-----, Tal. -----, Dist. Solapur.**

INDEX

ITEM NO.	PARTICULARS	PAGE NO.	
		From	To
-	STRIPPING	65	65
-	EXCAVATION	66	72
-	RULES FOR BLASTING OPERATION	73	77
-	EMBANKMENT	78	88
	PITCHING AND ROCK TOE	89	89
-	REINFORCEMENT	90	93
-	CEMENT CONCRETE	94	104
-	MISCELLANEOUS	105	106
-	SPECIAL CONDITIONS FOR THE MATERIAL TO BE BROUGHT BY THE CONTRACTOR	107	107
	ROYALTY CHARGES	108	18
-	DESIGN AND DRAWING		

Signature of Contractor

No. of corrections

Executive Engineer

GENERAL SPECIFICATIONS

S: STRIPPING

S.0: SCOPE

Stripping and benching the seat of the dam and disposing off the material as and where directed.

S.1: SCOPE

The item of stripping includes furnishing of all tools, plant, labour and material required for carrying out excavation in all strata, including site clearance, conveyance and disposal in a manner approved by the engineer-in-charge and with all leads and lifts and all items covered within the intent and purpose of the item.

S.2: SITE CLEARANCE

All area required for the seat of the dam and beyond the seat on the dam shall be cleared of all trees up to the diameter of 15 cm, stumps, bushes, roots, rubbish and all other objectionable materials. All such materials shall be removed from the site so as not to interfere with construction and maintenance operation of the project and shall be disposed off as directed by the engineer-in-charge to such disposal area as directed. All trees cut and all materials from dismantled structures shall be the property of government and shall be stacked at suitable places as directed by the engineer-in-charge or his representative.

S.3: STRIPPING

The entire area of the seat of dam shall be stripped off to a sufficient depth to remove all top soil, loose soil and vegetable matter and soil in the root zone or soil not suitable for the foundation of the dam embankment as determined by the Engineer-in-charge. The stripping should be carried out down to a firm natural soil as directed.

However, the rate of the item shall include striping maximum up to 0.30 Meter Depth. Any stripping required to be done below 0.30 meter depth will be paid under the item of excavation. The rate also includes benching and keying which shall be formed whenever directed to insure proper junction and bonding. In case of trees with deep roots, they must be removed at least up to one meter depth below ground level.

S.4: DISPOSAL OF MATERIALS

The stripped material shall be transported and dumped or stacked at the disposal sites as approved by the engineer-in-charge. In no case shall this stripped material contaminate with the embankment materials.

S.5: LEAD AND LIFT

The item includes all lead and lifts involved in the operation

S.6: MODE OF MEASUREMENTS

The measurement shall be based on the volume of the stripped quantity in cubic meter. The quantity will be computed by taking cross section at every 20 meters or at closer intervals for the areas stripped as per specifications.

EXCAVATION

E1: SCOPE

Excavation is mainly classified to its purpose under

- 1) Excavation for seat of dam and drain.
- 2) Excavation for Waste Weir, approach and tail channels, flank walls Guide walls, key walls and head regulators etc.

The item includes furnishing of all tools, plant, labour and material required for carrying out excavation in all strata including conveyance and disposal in a manner hereinafter specified and all operations within the intent and purpose of the item.

The item of excavation for other purposes shall include furnishing of all tools, plant, labour and material required for carrying out excavation in different strata for the various parts as denoted in the drawings, and removing and disposal in a manner hereinafter specified with all leads and lifts, maintaining the excavated slopes and trenches and all operations covered within the intent and purpose of the item. The rate also includes excavation in wet and moist conditions occurred in.

E2: CLEARANCE OF SITE OF WORK

All areas required for the construction of the dam and appurtenant works and the surface of all borrow pits shall be cleared off all trees, stumps, bushes, roots vegetation and other objectionable materials. All such materials shall be removed from the site so as not to interfere with construction and maintenance of the project and shall be disposed off as directed by the engineer-in-charge to such disposal areas as directed. All trees cut and all materials from the dismantled structures shall be the property of government and shall be stacked at suitable places as directed by the engineer-in-charge. The cost of clearance as specified above is deemed to be included in the item of excavation for dam and appurtenant works.

E3: BASE LINES AND GRADES

Before starting the work, one reference line and Bench Marks will be established by the department. Permanent base lines and cross lines shall be established by the contractor at sufficiently close intervals with Bench Marks at all end points to serve as "Reference Grid". The contractor shall provide at his expense all templates, pillars and stakes, equipment materials and labour for establishing the Grid lines and the pillars, and shall be responsible for their maintenance during the whole season of construction. These shall be laid out with the prior approval of the engineer-in-charge. No base line or bench marks or reference marks shall be used as reference line for the work, without prior approval of the engineer-in-charge. The contractor shall maintain a certified copy of such approved reference lines, bench-marks and levels and shall not remove any of them without the prior approval of the engineer-in-charge.

The reference points and pillars, already established by the department in the works area shall be fully protected and maintained by the contractor. He shall repair and rebuild the same in case of any damage, intentional or otherwise.

The contractor shall layout the work from the reference base lines in consultation with the engineer-in-charge and shall be responsible for the correctness of all measurements and levels in connection therewith notwithstanding the fact that the same might have been checked by the staff of the engineer-in-charge.

The contractor shall be responsible for the proper execution of the work to such lines and grades as may be specified in the drawings or established or indicated by the engineer-in-charge from time to time.

E4: CLASSIFICATION OF STRATA

Signature of Contractor

No. of corrections

Executive Engineer

The strata of excavation shall be classified as under:-

- 1) Hard strata.
- 2) Soft strata with soft rock.

DEFINITION OF STRATA

HARD STRATA

This shall include all rocks occurring in masses which normally needs regular blasting for quarrying (Note: It shall also include rock which owing to the proximity of building or for any other reasons has to be cut by means of chisels or wedges). It shall also include boulders in mass and isolated boulders in mass.

SOFT STRATA WITH SOFT ROCK

This shall include all material which is rock but does not need blasting and could be removed with pick, bar and shovel. It shall also include boulders more than 0.1 cubic meter each which normally do not need blasting and could be removed with a pick, bar and shovel .

This shall include all kinds of materials such as shale, indurate clay, soil, silt, sand, gravel, sole, average and hard murum and any other material which can best be removed with a shovel after loosening with pick and / or bar. It shall also include isolated boulders up to 0.1 cubic meter each which normally do not need blasting and could be removed with a pick, bar and shovel.

At the change of the strata the contractor shall inform the department in writing before proceeding with the excavation in the hard strata. The engineer-in-charge may thereupon cause to take levels of the finished excavation in the soft strata.

The decision of the engineer-in-charge regarding classification of strata shall be conclusive and binding on the contractor. No distinction shall be made whether the material is dry or wet.

E5: SAFETY OF EXCAVATION

Before any work of excavation of foundation is taken up, all loose rock, detached rock in or close to the area to be excavated, that is liable to fall or otherwise endanger the workmen on the project shall be stripped. The methods employed shall be such as will not shatter any rock that was originally sound or safe. Any material not required removal as contemplated therein, but which may later become loosened or unstable shall be promptly and satisfactorily removed. The cost of such clearing shall be deemed to have been included in the unit rates accepted under the different terms of excavation and up to pay lines.

E6: SHORING AND STRUTTING

MAINTENANCE OF EXCAVATION SLOPES

Any shoring and strutting required during construction shall be deemed to be covered by the rates quoted for the items. The contractor shall be responsible for the adequacy of the excavated stuff. If at any particular location the contractor considers it necessary, in the interest of safety to provide safety measures, shall forthwith bring the same to the notice of engineer-in-charge and obtain the orders thereon. Such additional excavation shall be paid for at the rates accepted for the particular class of material.

Before excavation of the trenches to the final slopes it is necessary that the contractor shall first ascertain the strata classification by excavating a pilot section and only after the strata is classified, adjust the said slopes to final designed section. The contractor is not entitled for any extra payment on this account and the tendered rate is deemed to be inclusive of it.

SLIPS

Signature of Contractor

No. of corrections

Executive Engineer

Every precaution shall be taken to prevent slips. But should slips occur, the slipped material shall be removed to slopes as directed. Removal of such material shall not be paid for. No compensation shall be paid to the contractor because of mishaps arising out of slips.

E7: BLASTING

OBSERVING RULES REGARDING BLASTING

In conduction blasting operations, proper precautions shall be taken for the protection of persons, the work and property. All Government laws in relation to design and location of power magazines, transport and handling of explosives and other measures enacted for the prevention of accidents shall be strictly observed. Warning signals shall be given for each blast. Specifications for blasting given under separate section shall be carefully and rigidly observed.

STORING OF EXPLOSIVES

Explosives shall be stored in the magazine building to be provided by the contractor under the special care of a watchman, so that in case of accidents, no damage occurs to other parts of the work. Explosives, detonators and fuses shall each be separately stored.

RESTRICTIONS ON BLASTING

- a) No blasting which may disturb. Endanger the stability. Safety or quality of the foundation shall be permitted.
- b) Blasting within 30 meters of main work in progress of permanent structure shall not be permitted.
- c) Progressive blasting shall be limited to two third of the total remaining depth of excavation.
- d) No large scale blasting operation will be resorted to when the foundation excavation reaches the last one meter and only small charges preferably black powder may be allowed so as not to shatter the foundation.
- e) The last blast shall not be more than ½ meter in depth. Therefore for finishing the excavation work and in special locations (only in rock) where specifically indented or ordered in writing by the engineer-in-charge use of explosives shall be discontinued and excavation completed by barring, wedging, chiseling or other suitable methods approved or directed by engineer-in-charge and cost of such work will be deemed to have been included in the tendered rate.

E8: EXCAVATION OUTLINE AND PAY LINE FOR OTHER THAN FOUNDATION STRUCTURE

All excavation shall be performed in accordance with the lines, grade levels and dimensions shown in the drawing or established by the engineer-in-charge. The dimensions shown in the drawing are tentative. During the progress of work it may be found necessary or desirable to vary the slopes or the dimensions of excavation from those specified in the drawings. The side slopes to the excavations shall be as steep would stand with safety as decided by the engineer-in-charge and, slopes would be normally as per table given below or less subjects to safety.

Table	Slope	Table	Slope	Table	Slope
Sand	1:1	HM /HMB	¼:1	S. R. above 3 m depth	1/4:1
Soil /S.M	½:1	S. R. & HR Up to 3 m	Vertical	H. R. above depth 3 m	1/8:1

If the slopes established are found to be steeper and likely to slip, they shall be made flatter removing the additional material and introducing suitable beams if possible and stable

faces established as decided by the engineer-in-charge. The additional excavation when ordered by the engineer-in-charge will be paid at the rates accepted for excavation for the particular class of material.

PAY LINES AND EXCESS EXCAVATION IN CASE OF FOUNDATION OF STRUCTURES

No payment shall be made for the work done beyond the specified pay lines. Payment lines for different strata for all excavation is defined as the lines starting from the outer dimensions of masonry of concrete at foundation levels and sloping up conforming to the side slopes as above specified in the table above.

Notwithstanding standards given hereinbefore for the excavation outlines and contractor shall take care to see that no slips or accidents occur and that the slopes are stable if necessary he shall carry out necessary shoring and strutting at his own cost.

Any or all excavation carried out by the contractor for any purpose or reasons shall unless ordered in writing by the engineer-in-charge be at the expense of the contractor and if the unauthorized excavation has to be filled with concrete or masonry or with materials as specified by the engineer-in-charge, filling so needed, shall be carried out by the contractors as per the specifications of the respective items of works at his own expense.

E9 : DISPOSAL EXCAVATED OF MATERIALS

Deposition of excavated stuff clears off traffic lines, etc.

Before any excavation is started, the deposition of spoil shall be carefully planned so as not to obstruct traffic lines required for transport of the construction materials.

The excavated material shall be dumped sufficiently clear off the edges of excavation so as not to endanger stability of the excavation and also permit ample space for tramways, lorry patches, installation of lifting and pumping devices, stacking construction materials, etc.

SORTING OF EXCAVATED MATERIALS

The excavated material shall be carefully sorted for use on the dam, as directed by the engineer-in-charge and shall be hauled directly to the place of use if possible. The excavated material which is not considered fit for use in the embankment, shall be immediately removed and deposited at such place and in such manner as well be directed by the engineer-in-charge. The material found unusable should be got approval from the engineer-in-charge before actually disposing it off. The useful material obtained from excavation shall be used directly or heaped separately as per the requirements for earthen dam and masonry spillway. The material for earth dam shall be heaped for different zone namely

- 1) Earth material required for hearting
- 2) For casing zone
- 3) Rubble required for rock toe, pitching and quarry spauls.

The rubble suitable for masonry etc. should be stacked separately for following purposes:

- 1) Large size rubble for masonry.
- 2) Small size rubble for crushing.
- 3) Long headers for masonry, etc.
- 4) Chips for back filling, etc.

CONVEYANCE OF MATERIAL

All the excavated materials from excavation shall be selected by removing roots, grass, organic matter, and other objectionable matter and be sorted out into different types of materials for use in different zones of the dam as directed by the Engineer-in-charge. The same shall be loaded in the vehicles proceeding directly to the place of use except such material as is required to be stockpiled.

MODE OF HEAPING OTHER USEFUL MATERIALS

The useful materials that cannot be used directly shall be heaped in separate area with reference to the nature of the material. Stockpiles shall be of as regular size as possible allowing of easy measurements.

The material once heaped shall be utilized as and when and where required and as directed by the engineer-in-charge. The cost of complete item of excavation includes the cost of re-handling of the materials so temporarily heaped and reused.

THE FREE USE OF USEABLE EXCAVATED SPOIL

All usable spoils of excavation whether done by the contractor or department or through other agencies fixed by the department will be available free of cost for use by the contractor on the construction of the dam only, when it is not required by the department.

MODE OF WASTING MATERIALS

The waste materials shall be heaped in spoils banks in regular shape with suitable slopes as directed and properly trimmed so as to present a neat appearance of that may be wasted in other approved locations. The spoil-banks shall be located in such a way that they will not interfere with the natural flow of the river.

No material shall be wasted where it will be detract from the appearance or interfere with the accessibility of completed structures. Excavated materials shall not be carelessly thrown over the premises and shall be deposited directly in permanent positions consistent with proper execution of work.

LEADS AND LIFTS

The unit price shall include all leads and lifts in the above operations.

E10: MEASUREMENTS AND PAYMENTS

The measurements shall be based on areas of cross section taken normal to the axis of structure of its part of the original ground surface and the surface of finally completed excavation within the pay lines, taken at every 20 meters along with axis of structure of its part. Where there is abrupt change in depth, additional cross section may taken at the discretion of the engineer-in-charge. Levels along the cross section shall be taken at every 15 to 20 meters or 5 meters as per exigency of work.

During the execution of the work, running payments for the items of the excavation will be made to contractor at 90% of his tender rate for the item. The remaining payments for this item will be progressively released depending upon the progress of completion of the item of excavation. The part rate will be reviewed by the engineer-in-charge when he feels necessary and decision of the engineer-in-charge shall be final and binding on the contractor. During the excavation of the work, running payment for the items of excavation will be made to the contractor on the basis of cross sectional measurements.

E11: PREPARING AND TESTING OF FOUNDATION: SCALING, TRIMMING OF FOUNDATION

After rough excavation to the required depth is completed, scaling and trimming operations for removal of all pieces loosened during excavation of partly separated from main rock mass by seams or cracks shall be carried our to the entire satisfaction of the engineer-in-charge.

TREATMENT OF WEAK LOCAL SPOTS

All weathered or partly decomposed pieces of rock shall be removed so as not leave on the foundation any rock other than that which is an integral part of the rock mass. Areas of low bearing capacity, steep inclined seams, faults, and crushed zone of an otherwise good foundation,

if permitted to be kept shall be cleared out to a sufficient depth and refilled and plugged with masonry or concrete as directed by engineer-in-charge.

FINAL FINISHED SURFACE OF FOUNDATION

The finally prepared foundation shall present a rough surface in cross section to give added resistance to sliding. All polished surfaces shall be roughened artificially to give good bond. The surface shall be free of steep angle and the edges of benches shall be chamfered approximately to 45° pinnacles or projections shall be knocked off and prominent knobs flattened. Neither along the length of the dam, nor across it, shall the foundation normally have a slope steeper than 1 vertical: 1 horizontal and 1 vertical: 4 horizontal respectively unless otherwise permitted by the engineer-in-charge.

TESTING FOR SOUNDNESS

The finally finished foundation rock shall be tested by striking with a heavy hammer and if any loose portion of foundation rock is revealed by a hollow sound, it shall be excavated further (without blasting) till a clear ringing sound is obtained.

FOUNDATIONS TO BE KEPT COMPLETELY DRY DURING CONSTRUCTION

The foundation shall be kept completely de-watered till such times as would be required for the masonry or concrete to set. The de-watering required for this purpose shall be included in the separate item of diversion and de-watering cost of preparation of foundation as specified herein before shall be included in the separate item of preparing foundation.

E12: PREPARATION OF FOUNDATION SURFACE

SCOPE

The item includes furnishing of all plant labour and material required for preparation of foundation i.e. cleaning, scaling and trimming operation for removal of all loose pieces found at the top of foundation level, it also including dry air jetting and then cleaning with air and water jet under pressure. The rate also includes applying cement slurry and cement mortar in proportion 1:3 before laying masonry or concrete on finally finished surfaces.

SEALING AND TRIMMING OF FOUNDATION

Rough excavation complete to the required depth is to be further cleaned and finished as below. The scaling and trimming operation for removal of all pieces, loosened during excavation or partly separated from main rock mass by seams or cracks, shall be carried out to the satisfaction of the Engineer-in-charge.

PREPARATION OF SURFACE PRIOR TO LAYING

Immediately before laying masonry or concrete, the foundation shall be thoroughly cleared of all loose materials like chips, sand, dirt and even a slight film of oil, all grease. This shall be done by pick, hammers, stiff, forms, jets of water and jets of air at high pressures and or wet sand blasting followed by thorough washing. The whole surface and particularly all corners, crevices and joints shall be cleared off, all dirt clinging to them by holding the tip of water hose close to it. The pressure for jets of water or air shall not be less than 15 meters of water head and 5 kg/cm² for it.

The finished surface shall be thoroughly scrubbed with stiff wire brushes. The washing and scrubbing shall be continued until deleterious material, clinging to the surface is removed. This is indicated by the wash water in the benches becoming clean and free from dirt. In the final clearing all water shall be removed by using sponge so that slightest pool of water does not remain.

MORTAR ON PREPARED SURFACE

Before laying masonry or concrete over the finally prepared surface of the foundation slurry of water cement ratio (0.6) by weight shall be applied on rock surface. Over this slurry

layer of cement mortar 1:3 as directed with water cement ratio as low as practicable, should be laid to a depth of 50 mm to 70 mm. The mortar shall be rubbed by a trowel, to ensure good adhesion.

RULES FOR BLASTING OPERATIONS

GENERAL

- 1) The contractor shall acquaint himself with all applicable laws and regulation concerning storing, handling and the use of explosives. All such laws, regulations and rules etc., as are current from time to time shall be binding upon the contractor.
- 2) The provisions detailed in these rules are supplementary to the above laws, rules and regulations etc., and are applicable except where the conflict with the above mentioned laws etc. from time to time. Further the engineer-in-charge may issue modifications, alterations or new instructions from time to time. The contractor shall comply without the same being made a cause for any claims.

MATERIALS

- 3) All materials explosives, detonators, fuses, tamping materials etc., that as proposed to be used in the blasting operations, shall have the prior approval of the engineer-in-charge.
- 4) Black powder and safe explosives (as commonly current in India) shall be used wherever possible. Explosives with Nitroglycerin shall only be under exceptional circumstances and where the above explosives are not effective.
- 5) The use of fuse with only one protective coat is prohibited. The fuse shall be sufficiently water resistant to be unaffected when immersed in water for thirty minutes. The rate of burning of the fuse shall be uniform and less than 4 second per 2.5 cm of length with 10% tolerance on either side.
Before use, the fuse shall be inspected and the moist, damaged or broken ones discarded. The rate of burning of all types of fuses, or when they have been in stock for long, shall be tested before use.
- 6) The detonators used shall be capable of giving effective blasting of the explosives. Moist or damaged shall be discarded.

PERSONNEL

- 7) Excavation by blasting will be permitted only under person's supervision of competent and licensed and trained workmen.
- 8) All supervisors and workmen in charge of making up, handling storage and blasting work shall be adequately insured by the contractor.
- 9) The storage shall be in charge of a very reliable person approved by the engineer-in-charge, who may, if necessary, cause police enquiry being made as to his reliability, antecedents, etc. The contractor shall have to produce a security for the person in charge of explosives if and as required by the engineer-in-charge or the civil authorities of the District.
- 10) The contractor shall make sure that his supervisors and workmen are fully conversant with all the rules to be observed in storing, handling and use of explosives. It shall be assured that the supervisor in charge is thoroughly acquainted with all the details of the handling of the blasting operations.

STORAGE OF EXPLOSIVES

- 11) The contractor shall build a magazine, for storing the explosives. The site of the magazine its capacity and design shall be subjected to approval by the engineer-in-charge and the inspector of explosives before the construction is taken up as a rule, the explosives should be stored in a clean, dry, well ventilated, bullet proof and fire proof building on the isolated site.
- 12) The explosives, detonators and fuses shall each to be separately stored.

- 13) A careful and day to day account of the use of explosives shall be kept by the contractor in an approval register and in an approved manner. The register shall be produced by the contractor for the inspection of the engineer-in-charge when so required by the latter, the engineer-in-charge may also pay a surprise visit to the storage magazine in case of any unaccountable storage of the explosives or if the account is not found to have been maintained in a manner prescribed by the engineer-in-charge, the contractor shall be liable to be penalized with forfeiture of the security deposit lodged by him with the government of his tender shall be cancelled in which case he shall not be entitled to any compensation for the losses etc. The action taken under this clause shall be in addition to that which might be taken by the competent civil authorities in a court of law.
- 14) The magazine shall at all times, be kept scrupulously clean.
- 15) No unauthorized person shall at any time, be admitted inside the magazine.
- 16) The magazine shall, when not in use of authorized person, be kept well and securely locked.
- 17) The magazine shall on no account be opened during or in the approach of thunderstorm and no person shall remain in the vicinity of the magazine during such period.
- 18) Magazine shoes without nail shall at all time be kept in the magazine and wooden tub or cement tub about 30 cm high and 45 cm in diameter, filled with water shall be fixed near the door of the magazine.
Person entering the magazine must put on the magazine shoes which shall be provided by the contractor for the purpose and be careful.
- i. Not to put their feet on the clean floor unless they have the magazine shoes on.
 - ii. Not to allow the magazine shoes to touch the ground outside the clean floor.
 - iii. Not to allow any dirt or grits to fall on the clean floor.
- 19) Person with bare feet, shall before entering the magazine, dip their feet in water and then step direct from the tub over the barrier (if there be one) on the clean floor.
- 20) A brush or boom shall be kept in the lobby of the magazine, for clearing out the magazine on each occasion it is opened for the receipt, delivery or inspection of explosives.
- 21) No matches or inflammable material shall be allowed in the magazine, lights shall be obtained from an electric storage battery lantern.
- 22) No person having article of steel or iron on him shall be allowed to enter the magazine.
- 23) Workmen shall be examined before they enter the magazine to see that they have none of the prohibited articles on their person.
- 24) Oil cotton rages, waste articles liable to spontaneous ignition shall not be allowed inside the magazine.
- 25) No tools or implements other than those of copper, brass, gunmetal or wood shall be allowed inside the magazine. All tools shall be used with extreme gentleness and care.
- 26) Boxes of explosives shall not be thrown down or dragged along the floor and shall be stacked on wooden trestles. Where there are white ants the legs of the trestles should rest on shallow copper lead or brass bowls, containing water. Open boxes of dynamite shall never be exposed to the direct rays of the sun.
- 27) Empty boxes of loose packing material shall not be kept inside the magazine.
- 28) The magazine shall have a lightning contractor which shall be got tested at least once a year by an officer authorized by the engineer-in-charge, the testing fee shall be charged on the contractor which will be Rs. 20/- for each inspection. The contractor shall within 15 days comply with all the recommendations made by the officer testing the lightning conductor failing which, the engineer-in-charge shall be entitled to comply with the same at

the contractor's expense which shall not be open to question or may consider any action that he may consider fit.

- 29) A notice shall be hung near the store prohibiting entrance of unauthorized persons.
- 30) The following shall be hung in the Lobby of magazine.
 - a) A copy of the rules both in English and in the languages which the workers concerned are familiar with.
 - b) A statement showing the up to date stock in the magazine.
 - c) A certificate showing the last date of testing the lightening conductor.
 - d) A notice that smoking is strictly prohibited.
- 31) The magazine will be inspected at least twice a year by the officer or engineer-in-charge who will see that all the rules are strictly complied with. He will notify all omissions etc., to the contractor, who shall rectify the defect within a period of 15 days from the date of receipt of the suitable notice failing which, the engineer-in-charge may take whatever action he considers fit.

USE OF EXPLOSIVES

- 32) For the transport of the explosives and detonators between the store and the site closed and strong container made of soft material such as timber, zinc, copper, leather and the like shall be used.
- 33) Explosives and detonators shall be carried in separate boxes and transported separately for the conveyance of primers special containers shall be used.
- 34) Boxes and containers used shall be kept well closed.
- 35) Explosives shall be stored and used chronologically to ensure the one, received being used first.
- 36) A make up house shall be provided at each working place in which made up by an experienced man as required. The make up house shall be separated from magazine building. Only electric storage battery lamps shall be used in this house.
- 37) No smoking shall be allowed in the make up house.

DISPOSAL OF DETERIORATED EXPLOSIVES

- 38) All deteriorated explosives shall be disposed of in approved manner. The work of the deteriorated explosives to be disposed of shall be intimated to the engineer-in-charge prior to its disposal.

PREPARATION OF PRIMERS

- 39) The primers shall not to be prepared near open flames or fires. The work of preparation of primers shall always be entrusted to same persons. Primers shall be used as soon possible after they are ready.

CHARGING OF HOLES

- 40) The work of charging shall not commence before all the drilling work at the site is completed and the supervisor has satisfied himself to that effect by actual inspection.
- 41) While charging open lamps shall be kept away. For charging with powdered explosives naked flames shall not be allowed.
- 42) Only wooden tamping rods, without any kind of metal on them shall be allowed to be used.
- 43) Bore holes must be of such size that the cartridges can easily pass down them.
- 44) Only one cartridge shall be inserted at a time and gently pressed home with the tamping rod. The sand, clay or other tamping material used for filling the hole completely shall not be tamped too hard.

BLASTING

- 45) Blasting shall be carried out during fixed hours of the day which shall have the approval of the engineer-in-charge. The Blasting hours once fixed shall not be altered without prior written approval of the engineer-in-charge.
- 46) The site of blasting operations shall be prominently demarcated by red danger flags. The order of fire shall be given only by the supervisor in charge of the work and this order shall be given only after giving the warning to leave their work immediately at the first warning signal and to make for safe shelter and not leave the shelter until the clear signal has been given.
- 47) A bugle with a distinctive note shall be used to give the warning signals. The bugle shall not be used for any other purpose. All the labour shall be made acquainted with the sound of the bugle and shall be strictly warned to leave their work immediately at the first warning signal and to make for safe shelter and not leave the shelter until the clear signal has been given.
- 48) All the roads and foot paths leading to the blasting area shall be watched.
- 49) In special cases suitable extra precautions shall be taken. The engineer-in-charge may however, permit blasting for underground excavation without restriction of fixed time provided that he is satisfied that proper precautions are taken to give sufficient warning to all concerned and that the work of other agencies on the site is not unduly hampered.
- 50) For lighting the fuses, a lamp with a strong flame such as carbide lamp shall be used.
- 51) The supervisor shall watch the time required for firing the fuses and shall see that all the workmen are under safe shelters in good time.

ELECTRICAL FIRING

- 52) Only the supervisor-in-charge shall keep key of the firing apparatus and he shall keep it always with himself.
- 53) Special apparatus shall be used as a source of current of the blasting operations. Power line is not to be tapped for the purpose.
- 54) All the detonators shall be checked before use.
- 55) For blasts in one series detonators of the same manufacture and of the same group of electrical resistance shall be used.
- 56) Such of the electrical lines as could constitute danger for work of charging shall be removed from the site.
- 57) The firing cable shall have a proper insulating over so as to avoid short circuiting due to contact with water, metallic part of rock.
- 58) The use of the earth as return line shall not be permitted.
- 59) The firing cable shall be connected to the source of current only after ascertaining that nobody is in the area of blasting.
- 60) Before firing the circuit shall be checked by a suitable apparatus.
- 61) After firing whether with or without an actual blast the contact between firing cable and the source of current shall be cut off before any persons are allowed to leave the shelters.
- 62) During storms charging with electrical detonators shall be suspended. The charges already placed into the holes shall be blasted as quickly as possible after taking all safety precautions and giving necessary warning signals. If this is not possible the sight shall be abandoned till the storm has passed.

PRECAUTIONS AFTER BLAST AND MIS-FIRES

- 63) If it is suspected that part of the blast has failed to fire or is delayed, sufficient time shall be allowed to elapse before entering the danger zone. When fuses and blasting caps are used a

safe time should be allowed and then the supervisor alone shall leave the shelter to see the misfire.

- 64) Drilling near the hole that has misfired shall not be permitted until one of the two following operations has been carried out by the supervisor.
 - i) The Supervisor should very carefully (when the tamping is of damp clay) extract the tamping with a wooden scraper or jet of water or compressed air (using a pipe of soft material) withdraws the fuse with the primer and detonator attached. A fresh primer and detonator with fuse shall then be placed in this hole and fire.
 - ii) The Supervisor shall get one foot of the tamping cleared off and indicate the direction by placing stick in the hole. Another hole may then be drilled at 230 mm away and parallel to this hole, should then be charged and fired. The balance of the cartridges and detonators found in the rock be removed.
- 65) Before leaving his work, the supervisor should inform the supervisor of the relieving shift of any action of misfire and shall point out the position with a red cross denoting the same and also state what step, if any he has taken in the matter.
- 66) The supervisor shall at once report to the office all cases of misfire, the cause of the misfire, the steps taken in connection therewith.
- 67) The name of the supervisor in charge of day or night shift maybe noted daily in the contractor's office.
- 68) If misfire has been found to be due to defective detonator or dynamite the whole quantity of box from which the defective article was taken must be returned to the authority as may be directed by the engineer-in-charge for inspection to ascertain whether the whole box contains defective material.
- 69) Re-drilling the holes that have misfired either wholly or partly shall not be permitted.
- 70) Precautions after blasting:- After the blast, the supervisor shall carefully inspect the work and satisfy himself that all the charges have exploded.
- 71) After the blast has taken place in underground works, the workmen shall not be allowed to face till all the toxic gases are evacuated from the face.

ED-B : PROVIDING EMBANKMENTS

(With materials either from Borrow areas or useful approved materials from compulsory excavation)

ED-B 1: SCOPE

The item of embankment shall include furnishing all tools, plants, labours and materials required, stripping of the borrow areas, excavating the materials from the borrow areas, conveying the same and placing the same, of the useful materials from compulsory excavation for COT, masonry dam foundation, drains, etc. in specified layers for embankment, including watering and mixing (or drying as the case maybe) and mechanical compaction to specified density and moisture content for each type of material and performing all operations necessary and ancillary thereto.

ED-B 2: BORROW AREAS

GENERAL

All materials required for construction of embankment, or backfill, which are not available from the compulsory excavation (for cut off trench, masonry dam foundations, drains, etc.) shall be obtained from the contractors own borrow areas. Borrows pits shall be opened at the location and to the limits, as per directions of the engineer-in-charge. As far as practicable the borrow areas going under submergence on up-stream side shall be tacked first. The contractor is expected to have his own prospecting carried out before tendering for the works. The data presented therein are to be taken only as guidance and no claims shall be entertained in further due to lack of conformity between the natures and quantity of material actually met with during construction.

PRIOR APPROVAL TO BORROW AREA BEFORE START OF WORK

Before any borrow area is opened the material from the borrow area to be used in particular zone of the earth dam should be got approved from Engineer-in-charge.

STRIPPING OF BORROW AREAS

Before opening of borrow area from where the material is to be obtained, the area shall be cleared off all trees, stumps, etc. and stripped to remove the top soil, humus, vegetable matter organic matter, roots, rubbish, and all other objectionable material which is unsuited for the purpose for which the borrow pits to be excavated. All such materials shall be removed to such disposal areas as directed by the Engineer-in-charge. In no case shall the stripped material be allowed to contaminate the material going into the embankment. All trees cut shall be the property of Government and shall be stacked at suitable place as directed by the Engineer-in-charge.

The rate for embankment including use of material from borrow areas includes the clearing and stripping the borrow areas and disposing the waste material as directed. The cleared and stripped areas shall be maintained free from vegetable growth adequately and drained during the progress of work, without any extra cost.

Signature of Contractor

No. of corrections

Executive Engineer

EXPLOITATION OF BORROW AREA

- A. Where the borrow pits are opened adjacent to the dam, the edge of excavation shall be at a distance of five times of the height of the dam opposite as measured above the top level of edge of excavation to the top of the dam subject to the minimum distance of 100 meters from the toes of the dam.
- B. Where no positive cut off is provided, care shall be taken to see that no previous strata are uncovered by excavation of borrow pits on the water side of the dam within a distance of ten times the height of the drain as measured from the upstream toe of the dam.
- C. Borrow pits shall be so worked that selected materials will be furnished as required, as close as practicable to the point of utilization so that they will not interfere with the location of permanent structure no more the usefulness or appearance of any of the work.
- D. The formation of pools shall be avoided to avoid spoiling of useful material and also bad appearance and all borrow pits shall be drained as necessary by ditches to the nearest cut falls. All borrow pits except those that would be submerged in the reservoir shall be connected to each other and the last borrow pits to the nearest drainage channel so as to avoid stagnation of water. The bottom of the pits shall be so fixed, that the pits drain into some natural course.
- E. No borrow areas should be taken of roads, village tracks, canals, etc. occurring in the borrow areas.
- F. All borrow areas shall be arranged with certain amount of regularity having regard to the convenience of the work during excavation and to its safety and appearance of finish after its completion.

QUARRY ROADS

Temporary path to and fro borrow areas including river and nalla crossings (to the site of embankment where the materials are required to be deposited) shall be constructed and maintained by the contractor at his own cost.

MATERIAL FROM AREA OTHER THAN BORROW AREAS OR FROM THE COMPULSORY EXCAVATION IN SOFT STRATA

During the construction the contractor may after careful prospecting and with the specific written approval of the Executive Engineer bring suitable material from Borrow areas at his own cost. No extra payment for increase in lead or any other reason would be admissible.

ED-B 3: SELECTION OF MATERIALS

- I.** The borrow pit materials or the material from compulsory excavation shall be got classified from engineer-in-charge with regard to its suitability for the particular zone in the dam. The standard of material required for various zone in the dam i.e. filling of the cut of trench, hearting, casing zone shall be as directed by the engineer-in-charge. The classification by the engineer-in-charge shall be final and binding on the contractor.
- II.** The requirements of the material shall be generally as under:

A) HEARTING AND FILLING OF COT

The material shall be uniform impervious material, not containing boulders or any other hard materials of more than 5.00 cms maximum dimension, any organic matter and free from all clods and lumps

B) CASING

All materials shall be free from organic material and should contain coarse grained material, the suitability being conformed by laboratory tests. Normally the material should not contain boulders or stone larger than $\frac{3}{4}$ the size of thickness of the compacted layer, when compacted the material should be fairly pervious. The permeability of the compacted casing zone, as determined by the methods deemed fit by the engineer-in-charge, be about 10^4 cm/s (100 feet per year) or as specified by the engineer-in-charge.

ED-B 4: PLACING OF MATERIALS GENERAL

The embankment shall be constructed to the lines and grades shown on the drawings. The slopes of the division lines between zones or portions of embankment are tentative and shall be subject to variation at any time prior to or during construction and on account of this the contractor shall be entitled to no additional allowance above the unit price accepted. No roots, vegetable matter, hums or other unsuitable material shall be placed in the embankment. The contractor shall maintain the embankment in an approved manner until the final completion and acceptance of all of the work under the contractor. Care shall be taken to drain all rain water falling on the rolled surface away beyond the dam toe lines. The embankment for each portion shall maintain approximately level but it is necessary to have slopes. The slope should not be steeper than 1:2.0 (vertical to horizontal). All openings or gaps through the embankment required for constructions purpose shall be subject to approval and such openings or gaps if approved shall be constructed so that the slope of the bonding surface between embankment in place and embankment to be placed is not steeper than 1:4 (vertical to Horizontal). The suitability of each part of the foundation for placing embankment materials thereon and of all the materials for use embankment construction will be determined by the engineer-in-charge. The material shall be placed in layers and compacted. If the rolled surface is very uneven containing hollows and humps, the hollows shall be filled up and surface rolled before any fresh layer is taken.

REFERENCE POINT

Before commencing the placement, all lines marking the extremities of berm, hearing casing zones, filter etc. of the embankment shall be marked with reference to reference pillars. The reference pillars shall be of concrete or masonry and the information indication chainage levels etc. shall be properly inscribed or written on them as directed by the engineer-in-charge the contractor shall construct and maintain all reference pillars. No extra payment is admissible to the contractor on this account.

PREPARATION OF FOUNDATION OR PREPARATION OF SURFACE OF EARTH WORK PREVIOUSLY LAID**A. GENERAL**

No material shall be placed in any section of the dam until the foundation of that section has been dewatered and suitably prepared and has been approved by the engineer-in-charge. It is necessary to ensure the surface material of the foundation will be as compact will bounded with first layer of the embankment as herein, after specified for subsequent layers of the earth fill. All portion of the excavation made for test pits or trial pits and all other existing cavities found within the area to be covered by earth fill which extended below the established lines of excavation for dam embankment foundation shall be filled with compaction earth fill materials as herein specified for earth fill in embankment and payment therefore will be made as provided for hearing or casing in which section the pit or cavities are filled.

B. FOUNDATION OTHER THAN ROCK

The seat of the dam after it is stripped shall be cleared off all loose or objectionable material before placing any layer. The surface shall than be watered and rolled as directed if the surface material in not compact enough. The surface shall then be scarified by the sloughing or by harrows or by rake or by any suitable method, all clods broken and then it shall be moistened liberally but not more than 2% on wet side of optimum unless the foundation material already contains optimum of moisture before the first layers is placed.

C. ROCK FOUNDATION

Any steps of large depression of humps caused by abrupt change in level shall be veiled out to fine slope and the removal of rock will be paid under item of excavation. If necessary the surface shall be roughened by shallow longitudinal trenchers or corrugations cut in the rock and the removal of rock will be paid under the item of excavation. The rock surface including all pockets or depression shall be carefully cleaned of soil of rock fragments before placing of the first layer. Dikes and seams of soft material shall be opened out, cleaned to the depth as directed and filled with selected impervious material or lean concrete as directed by the engineer-in-charge. The foundation surface shall be moistened out no standing water shall be permitted when the first layer is placed. The rock surface after moistening shall be given slurry wash, and immediately after the wash (so as not allowing it to dry) first layer of soil will be placed.

If exposed surface is very rough and uneven, so as to preclude the use of power operated rollers and equipment it shall be brought to an even, surface by filling the hollows and depressions in layers not more than 100 mm thick with moist well soaked soil, having moistures content equal to standard proctor optimum moisture of dry weight of soil, and compacting the same by hand, pneumatic or mechanical tampers.

D. EARTHEN WORK PREVIOUSLY LAID

The treatment of the surface in the case before a fresh layer is placed will be the same as for the foundation other than rock. Over-compacted portions of embankment formed due to constant traffic which and likely to separate from the layers below shall be entirely removed without any extra cost. When smooth rollers are used for compaction, the surface of a compacted layer shall be scarified or roughened before fresh layer is laid out on it. When sheep foot rollers are used for compactions fresh layer may be directly laid on the previously laid surface. Water shall be sprinkled on the previous layer unless the material in the surface is sufficiently wet in case it contains moisture more than OMC due to rain, etc it shall be allowed to dry to have optimum moisture and rolled again.

E. ROCK ABUTMENTS OF SIDES OF ROCK CUTTING

It should be seen that no hollow side ways are left. Also all projections shall be trimmed before placing embankments against rock abutments or sides or rock cuttings the same shall be trimmed to ½:1 slope, preferably 1:1 slope and then thoroughly washed with mud slurry and selected moist soil laid against the same until the mud wash is still wet. The moist soil laid against rock surface shall be compacted with hand reamers or air operated reamers. Soil with moisture content equal to OMC+2% of dry weight of soil will be used for this portion.

The cost of operation involved in preparation of foundation surface shall be included in the rates of embankment

F. LAYING AND SPREADING IN LAYERS

- a) Approved material free from clods and lumps, large than 50 mm size shall be conveyed directly from source of excavation or from stock piles and laid in appropriate zones of embankment as directed by the Engineer-in-charge, on surface of the foundation of previously laid earth work prepared as specified. The material shall then be spread on the embankment in uniform and continuous layer approximately horizontal unless earth work in slope has been permitted or specified.
- b) The thickness of layers will depend on the nature of materials and the type of compacting machinery. The thickness of layer should be such that desired density after compaction shall be uniformly obtained through the depth. For the guidance of the contractor it may be stated that the thickness of the layer shall be 20 to 23 cm loose and 15 cm compacted for sheep foot rollers, 15 to 11 cm loose and 11 cm compacted for smooth wheeled rollers and 8 cm Loose and 5 cm compacted by hand or pneumatic or mechanical tampers. The thickness of the 1 compacted layers will be found out by

taking levels after every three (or less number if necessary) layers laid and compacted and finding out the average. The layer shall be spread in uniform width and in stages to facilitate compaction by rollers. The work in various zones all as far as possible be raised simultaneously. If however any zone or its part is permitted by the engineer-in-charge to be raised higher than the part adjacent to it, the loose density without extra cost as directed by the Engineer-in-charge. A minimum slope of 2:1 should be provided at such junction and vertical difference between such two junctions should not be more than 1.5 meters.

- c) No clods or lumps more than 5 cm size shall be allowed in hearting and all lumps and clods shall be broken up to the above size before rolling.
- d) The distribution and gradation of materials through the impervious core including the backfill of the cut off trench shall be from lenses or pockets of materials differing substantially in texture of gradation from surrounding material. The excavation and placing operations shall be such that the materials when compacted will be so blended as to secure the best practicable degree of compaction, impermeability and stability.
- e) The Engineer-in-charge may designate the location in the earth fill where the individual loads shall be deposited. The most imperious materials shall be placed in the central upstream portion of the earth fill and the more previous materials shall be placed on either side of it so that permeability of the fill will be gradually increased towards the upstream and down stream edge of the fill when materials differ in dry density but have about the same permeability the material having the greater density should be placed in the other section of the zone of the dam as the case may be.
- f) Should cobbles and rock fragments of size larger than permissible be found in otherwise approved earth fill material they shall be removed by the contractor either at the side of excavation or after being transported to the earth fill but before materials in the earth fill are wasted as approved and directed by the Engineer-in-charge.
- g) In order that proper compaction can be done up to the edge of the designed section and then dressed and brought to the required slopes. Necessary extra quantity required to be handled for this purpose shall not be paid for and is considered to be included in the rate of this item.
- h) In order that design section is achieved after due settlement allowance shall be included when constructing the embankment a minimum allowance of 5cm per 1m height (measured from the bed level of the COT to the designed level of top of dam) shall be included.

MOISTURE CONTENT

- a) The water content of the earth fill material prior to and during compaction shall be distributed uniformly throughout each layer of the material. The difference, $(W_0 - W)$ where W_0 is optimum moisture content as determined by the standard proctor compaction test expressed as percent of dry weight of soil shall be as follows :-

- i. (W-W₀) to be -2% to + 2% in case of at least 90% samples in case as hearting and 75% in case of casing, collected in week.
 - ii. (W-W₀) to be -3% to + 3% in the case of the remaining 10% and 25% samples. The standard proctor compaction tests will be made by the Department from time to time. The material shall be brought to the proper water content by adding necessary amount of water or allowing moisture to evaporate either at the borrow pit or on the dam before commencing compaction of layers. When water is proposed to be added at the embankment, the required amount of water to be sprinkled for given quantity of soil, shall be first calculated making due to allowances for natural moisture, constant evaporation, base watering etc. This calculated quantity of water shall than be thoroughly mixed with the soil by means of dish arrow or any other suitable method before compaction. All charges for watering and mixing are included in the item of embankment including pumping, transporting, pipe lines etc., as necessary.
- b) It may be necessary to allow the water to soak into the soil after spreading and mixing if necessary for sufficient time to have uniform moisture throughout the layer. The contractor shall not get any extra payment for stoppage of work necessitated for allowing soaking of the soil.
 - c) Water contained in soil to be laid to fill hollows in rock foundation and rock abutment and near sides in rock cutting will be specified under the specifications for preparation of foundation (OMC+2 percent of dry weight of soil). The same moisture content shall be adhered to in case of filling at the sides of COT filling and filling around masonry structures.

COMPACTIONS

- A. Each layer after it is found to have specified moisture content uniformly distributed shall be compacted to give specified density. No fresh layer of soil shall be laid and compacted unless previous layer is approved by the engineer-in-charge. If the water content of the material spread in layer is more or less then specified, compaction shall not be started unless the moisture is brought to specified value.
- B. Compaction of the embankment shall be done by roller specified below except at part which are not accessible to above rolling equipment compaction of casing zone shall be done by seismopactors or by vibratory rollers. Compaction of hearting zone and COT filling shall be done by vibro roller. The number of passes required by particular type of roller to attain specified density shall be decided by actual trials by different types of soils to be used and equal numbers of passes should be given to each layer before carrying out the field density test. The final control of compaction will however be on basis of specified densities and not to the number of passes.
- C. In the parts of dam inaccessible to the specified rolling equipment such as test pits or trial pits below foundation level, irregular sides of cut-off-trench and portions around and in contact with the structures where the rolling equipment will not be permitted to operate, compaction shall be accomplished with either hand or mechanical tampers of approved type. Rollers will not be permitted to operate within 0.50 meter of concrete or masonry structures

and the filling within this distance shall be tamped by hand and a mechanical tampers. All materials to be tamped shall be spread in layers with thickness as specified. The moisture content of material and the degree of compaction shall be equal to that specified separately. Special care as directed shall be exercised to obtain a good contact and good bond with rock surfaces of masonry or concrete.

D. FIELD DENSITY TEST

The degree of compaction will be such as to give dry density as specified below. The density measurements will be conducted by the department from time to time to ascertain whether the compaction attained is as specified. For this purpose for every 300 cubic meters of compacted earthwork of one zone or for every layer compacted of a particular zone at least two field density tests will be taken and PDD and PMC worked out by oven drying method or K-oil method if the correlation is found to exist with the former. Separate tests are to be taken for the various zones of the dam. As the oven drying method involves a 24 hours period, to facilitate work preliminary control as follow shall be exercised. The wet density of compacted layer shall be equal to or above optimum wet density (OWD). And placement moisture content (tested by kerosene oil burning method) with +/- 1% of the optimum moisture content. If any field density test reveals that the dry density is less than permissible either additional rolling will have to be done without any extra cost or layer may have to be removed at no extra cost. In the event of additional rolling being permitted if it is found that original moisture has evaporated the layer may be broken up or specified as directed and watered and allowed to soak before rolling to bring the moisture content to specified value. Necessary assistance carrying out such density and moisture content tests shall be provided by the contractor free of cost to he departmental staff. The samples for density measurements will be taken any where to ensure that no weak spot at location such as junction of slopping filter and hearing of casing turning place or compacting equipments or any doubtful areas are left.

DEGREE OF COMPACTION

- I. This will be based on the dry densities achieved which shall satisfy following criteria.
- II. Control criteria subject to III and IV below.

CRITERIA FOR CONTROL OF COMPACTED DAM EMBANKMENT

Type of Material	% of gravel	Percentage base on minimum 6 mm size		
		Minimum acceptable Density.	Desirable Average Density	Desired Moisture content limits within
1	2	3	4	5
Hearing	25% by weight	98 % of proctor	100 % of proctor	2% of OMC
Casing	0 to 25	98 % of proctor	100 % of proctor	----do----
	26 to 50	95 % of proctor	98 % of proctor	----do----
	50	93 % of proctor	95 % of proctor	----do----
Filter	Sand	Dd = 70 %	Dd = 80 %	
Material	Gravels	Dd = 65 % Dd is a relative density	Dd = 70 %	

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Executive Engineer

- III.** In case of the material compacted by tampers the dry density of the soil fraction in the compacted material shall not be less than 95% of the standard proctor Optimum Dry density.
- IV.** In rare cases, when a layer with necessary moisture content gives lower density than specified in the above table even rolling large No of passed or after rerolling, such a layer may be approved at the engineer-in-charge provided (a) the placement Dry density is not less than 90% of the standard proctor Dry Density and (b) Number of such samples having PDD less than 95% ODD should not exceed 2% of the number of samples taken.

ED-B 5: JUNCTION WITH THE WORK OF OTHER AGENCY AT END CHAINAGES

At the end chainages, if the work will be done by other agencies, then at such junctions the earth work will be done as follows:-

EITHER

- a) If the work of both agencies is at the same level, the rolling will be done 2 meters beyond the end of chainage and no extra payment will be paid for the same.

OR

- b) If the work of other agency is at lower level, the work will be done with an outer slope of 1:4 with an extra length of half meter parallel to the dam alignment.

The earth work in this extra length will not be paid for.

There will be some reduction in the quantity of earth work. No claim by the contractor on this account will be entertained.

OR

- c) If the work of other agency is at higher level that agency will construct the bank with an outer slope. The contractor will have to do the earth work up to that slope throughout beyond the end changed stated in the tender. The quantity of earth work increased due this will be paid for at the same rates quoted by the contractor and no claims will be entertained for the extra work to be done.

ED-B 6: INSTRUMENT INSTALLATION

Some piezometric installation, settlement gauges and stand pipes etc. will be provided by the department at predetermined position in the earthen embankment of dam. The work will be done by the Department, which will require some time for installations and erections. During such installations and erections the work of length of the embankment in the vicinity of installation will be held up for sum time. The rate of earth work shall be deemed to have been quoted considering such breaks and no claims by contractor on the ground of breaks occurred for such

installations, will be entertained. The earthwork and the traffic of construction equipments in the vicinity of such installation shall be arranged as not to cause any damage to the instruments installed or being installed and shall be arranged as directed by engineer-in-charge.

ED-B 7: TESTING CHARGES

Unit rate given in Schedule “B” includes the rate for field test necessary for quality control of work. The contractor shall arrange for Laboratory equipment for all moisture content compaction and field density test or other tests as directed. He shall also arrange laboratory personnel for taking given test strictly under the supervision of site in charge. All cost towards testing at prescribed frequency shall be deemed to be included in unit rate.

ED-8: MODE OF MEASUREMENT

- a) The work shall be measured on the basis of cross section. The cross section shall be taken at an interval of 15 meters or at closer distances, as found necessary, the gross quantity of different zones, hearting, casing rock toe, etc., for facility of arriving at the correct quantities of hearting, casing, rock toe zone, that went into the embankment. Quantities of cut-of-trench shall be computed on the basis of cross section taken at interval of 15 meters at close distance and shall be the same as for the quantity of excavation paid for under the item of excavation of cut-of-trench, below stripped ground levels. Any extra filling of cut-of-trench due to side slopes caused due to negligence of contractor or resulting due to delay in filling COT will not paid for.
- b) The lines demarcating the zone of cross sections shall confirm to the respective typical sections except where departure from these are specially permitted by the engineer.
- c) The final measurements will be recorded on cross-sectional basis. These will be paid for net Foundation plan, with relevant cross section of the dam showing dimensions and levels shall be prepared and got signed by the contractor in token of acceptance before commencement of stripping and again after completion of the dam seat. The final measurements will be based on the accepted foundation plan and relevant cross sections and completed section of the dam at the time of taking final cross sections.
- d) The quantity arrived at on the basis of the following table will be deemed to be utilized as available stuff in the respective zones of the total embankment from the materials available from the respective item under excavation. Separation measurements of the quantity of embankment of available stuff will be based on the utilization factors given below.

Sr No.	Item of Exc-avation	%age of quantity deemed to be utilized	Factor for utilizable Qty in there from cut of measurements	Factor for loose measurement	Factor for utilization Embankment (compact)					
					Hearting	Random	Casing	Pitching	Rock-toe	Quarry spauls
1	2	3	4	5	6					
					Hearting	Random	Casing	Pitching	Rock-toe	Quarry spauls
1	Sand/soil / Soft murum	90	1	1.20	0.80	0.80	--	--	--	--
2	Hmb/HM	95	1	1.20	--	0.90	0.9	--	--	--
3	Soft rock	95	1	1.20	--	1.20	1.2	--	--	--
4	Hard rock strata	100	1	1.50	--	--	--	1.50	1.5	1.5

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No. of corrections

Executive Engineer

- e) When compaction is done by Mechanical rollers and under optimum moisture and prescribed density the deduction from running measurements of quantities of bank work from every running bill should be Five percent only. This 5% deductions from the quantities of bank work should be released in the final bill or after one monsoon whichever is later.

All measurements shall be taken on cross section of bank. For this purpose detailed cross section of the ground shall be taken at the interval of 15 meter or less as directed before an embankment of a particular reach starts. The quantities of bank work shall be worked out on the basis of areas and distance of these cross sections by prismoidal formula. Deduction in quantities of bank work and CNS bank shall be made for shrinkage at the rate of 5% of intermediate measurements out of the total deducted quantities only 3% deductions from the quantities of bank work should be released in the final bill after one or more monsoon.

If the work is completed before the rainy season the final measurements should be recorded only after the rainy season is over, so as to account for any settlement of fresh bank work during monsoon.

The final measurements shall however be taken only after one rainy season has passed after the bank work is finally completed. If the work is completed before the rainy season the final measurements should be recorded only after the rainy season is over, so as to account for any settlement of fresh bank work during monsoons.

- f) The deduction for bank work of Guide bund executed including watering and ramming by manual compaction shall be made 20% (twenty) from every running bill of the work. This 20% Quantity will be released in the final only.

PITCHING AND ROCK TOE

12.0 P1: SCOPE

The item shall consist of furnishing of all tools, equipment, materials and labour required for quarrying, transporting and laying the pitching with header toe and wave breaker including bedding, dressing of embankment to designed slope and other operations necessary and ancillary there to.

12.1 P 2: MATERIALS

a) RUBBLE FOR PITCHING OR SOLING :-

I) Stones for pitching or shall be sound, hard, dense and durable rock and should not break down or disintegrate on long exposure to water and air. The rubble shall be got approved from the Engineer-in-charge.

II) **SIZE :** The rock fragments shall be reasonable, well graded; containing at least 60% of stones weighing 35 kg or more, minimum size shall be weighing 10 kg.

12.2 -P3: LAYING

a) The base slope shall first be prepared to receive the pitching and the rubble pitching shall be laid on filter backing. The filter backing shall consist of 10 to 15 cm quarry spauls on the earth slope and 15 cm quarry spauls on the metal/sand base. The thickness of the rubble pitching shall be 30 cm. This thickness of rubble pitching is exclusive of the thickness of filter backing of metal/sand and quarry spauls.

b) The material for filter base shall be laid by spreading without segregation in uniform layers of specified thickness to the lines and grades of the embankment.

c) LAYING OF RUBBLE PITCHING AND SOLING

Stones shall be placed on level with the broadest side down and length normal to the slope larger rock fragment should be uniformly distributed with smaller rock fragments filling the spacing between the larger fragments in such manner as will result in compact uniform layer of pitching. The pitching could be made into layers but stones in each layer should be as large as possible and the stones in top layer should be made to interlock with the bottom layer.

The interstices between larger stones shall be filled with chips of as large size as possible properly hammered in such filling shall be carried out simultaneously with placing in position of the larger stones and shall in no case be permitted to fall behind. The wedging shall be so done that no chip can be removed by hand. No loose spaul of chips should be laid on the top surface of the pitching. The chips shall not be used as a substitute of full thickness of the large stones. The surface should present reasonably uniform slope as designed with a dense but rough face. The guide wall shall form part of the pitching.

The wave breaker shall be laid at 6 m center to center horizontally and 4 m center to center vertically in staggered fashion. The header toe line at the bottom of pitching to center of size 2010 mm x 2010 mm x 750 mm shall be laid per drawing and as directed by Engineer-in-charge.

12.3-P4: MODE OF MEASUREMENTS

The measurements shall be separately taken for stone pitching or rubble soling with header toe and wave breaker and paid for separately. The measurements shall be separately taken for soling and paid on cubic meter basis for pitching paid on square meter basis.

STEEL REINFORCEMENT

R.1.1: SCOPE OF WORK

This item covers providing, hauling storing strengthening, cleaning, cutting, bending, placing and or erection in position, securing and maintaining in position all reinforcement of MS Bars plain or for till the concrete is placed around it. It also includes splicing of the bars as shown on the drawings or as required by the engineer-in-charge and providing the hooks at ends. It also includes the cost off furnished and attaching wire ties and chairs, metal supports etc. It also includes welding of reinforcing bars where directed or permitted by the engineer-in-charge the reinforcement will be either MS or Tor steel. Combination or MS plain or Tor steel will be allowed in absence of availability of specific steel.

R.1.2: SUPPLY

The reinforcing steel shall be supplied by the contractor.

R.2: BAR BENDING SCHEDULE

The department will indicate the design requirement steel for the different components. The contractor shall prepare the bar bending schedule form those design, statement, showing the details of bends, cranks and splices provide by him for all the bars to be placed and get them approved form the Engineer-in-charge. The schedule shall be presented for approval well in advance of the laying of the reinforcement

R.3: CLEANING

Before steel reinforcement is placed in the position the surface of the reinforcement bars shall be cleaned off rust, scale, dirt, grease and other objectionable delirious foreign substance, heavy flaky rust and mill scale that cannot be removed by firm rubbing with burlap or equivalent treatment being considered. The fact light or early stage rust, has no detrimental effect on bond and hence could be disregarded shall be accepted as an excuse for careless handling and storage of steel

R.3.1

In storing, bars of the same sizes, lengths, shape and grade shall be assembled in racks and marked distinctly. Before the reinforcement bars are fixed in position it shall be verified that they are of the specified sizes and are cut and bent in accordance with the plans and specifications. They shall be accurately placed and secured in position by means of built in concrete blocks, metallic chairs, hangers, spacers or other suitable devices at sufficiently close intervals so that they will not sag between supports, not be displaced during the placing of the concrete or by any operation of the work.

R.3.2

Special care shall be exercised to prevent any disturbance of the reinforcement in concrete that has already been placed. The reinforcement after being placed in position shall be maintained a clean condition or unsightly rust stains on exposed concrete surface.

R.4: BENDING (REFER ISS NO 2502-1963)

Reinforcement shall not be straightened or bent in a manner that will injure or weaken the materials. Bars with kinks or bends not shown on the plans shall not be used. Bars shall be bent to the shape and dimensions shown on the drawings or as directed, using a bar bender, operated by hand or power, to attain the proper bending radius. The radius of bend shall not be less than 4 times nominal size of the bar. The radius of the bents for stirrups and ties should not be less than twice the thickness of bar. Heating of reinforcement bars to facilitate bending will not normally be permitted. When however, such heating is permitted in the case of large diameter large diameter bars, the temperature of the steel shall not exceed the corresponding to cherry colour, (about 800°C)

R.5: PLACING

- a) **Binding wire :-** Wire for tying reinforcement shall be soft and annealed steel. The wire may be of 1.2 mm to 1.63 mm and shall be soft and shall have (to confirm to 1:5 280, 1962) and ultimate strength of not less than 5600 kg/cum and yield point of not less than system 5600 kg cum yield point of not less than 3000 kg/cum.
- b) **Support and spacers:-** Metal supports spacers shall be fabricated from no corrodible metal. Dissimilar metals should not be placed in concert in intimate proximity with each other or joined by a conductor, specially in the continued presence of moisture unless it is known that galvanic action will not result.
- c) **Splicing by overlapping:-** Bars splices as indicated in the drawing or as specified by the Engineer-in-charge shall only not be done in the region of maximum bending moment and splicing of adjacent bars shall be avoided as far as possible.
- d) **By welding:-** Welding of bars of splicing may allowed in place of lapping, as the discretion of the Engineer-in-charge at approved locations. When welding is resorted to instead of lapping the bar to be spliced shall be lap welded or built welded by electric welding Ends or bars to be spliced shall be cleaned of all dirt, scales, rust, paint and foreign matter before welding all welding shall confirm to the relevant Indian standard specification. And weld will be considered unsatisfactory if it fails sustain a tensile. Stress of at least 90% of the tensile stress of carrying out the as directed by the Engineer-in-charge and within the accepted unit rate for reinforcement.

R.6: DISTANCE BETWEEN REINFORCEMENT BARS**R.6.1**

The distance between two parallel reinforcement bars shall be except as provided below in 6.2 not less than the greatest of the following distances.

- a) The diameter of each bar, if their diameters be equal.
- b) The diameter of the bar, larger if the diameters be unequal.
- c) 6 mm more than the nominal maximum size of the coarse aggregate comprised such concrete.

NOTE :

A GREATER DISTANCE SHOULD BE PROVIDED WHEN CONVENIENT

R.6.2

The vertical distance between two horizontal main steel reinforcement of the corresponding distance at right angles to two inclined main steel. Reinforcement shall not be less than 12 mm except at a splice or tap and except where on reinforcement is transverse to the other.

R.6.3

The pitch of the main bars in a reinforcement concrete solid slab shall not be more than three times the effective depth of such slab.

R.7: CONCRETE COVER**R.7.1**

Sufficient concrete cover shall be provided to protect reinforcement from corrosion of as indicate in the drawing. All detruing bars from concrete or masonry to which other bars are to be spliced and which will be exposed to action of weather for an indefinite period shall be protected from rusting by a thin coat of neat cement grout. Accurate records shall be kept at all time of numbers, sizes, lengths and weight of bars placed in position for different parts or the work.

R.7.2

The thickness of concrete cover (exclusive of plaster or other decorative finish shall be as follows)

- a) At each end of reinforcing bar a cover not less than 25 mill twice the diameter of such rod or bar.
- b) For a longitudinal reinforcing bar in a column cover not less than 40 mm nor less than the diameter of such rod in the as of column of minimum dimensions of 18 mm or under those the bars which do not exceed 12 mm diameter 25 mm cover maybe use.
- c) For a longitudinal reinforcing bar in a beam a cover not less than 25 mm nor less than the diameter of such rod or bar.
- d) For tensile, compressive, shear or other reinforcement in a slab a over not less than 12 mm nor less than the diameter of such reinforcement.
- e) For any other reinforcement not less than 12 mm nor less than the diameter of such reinforcement.
- f) For all external works for work against earth faces and also for internal work where there exists particular corrosive conditions. The cover of the concrete shall be increased 12 mm beyond the figure given below (a to 2)

R.7.3

Where because of splicing, the thickness of concrete in between reduces to less than the maximum size of the aggregate of concrete with reduced maximum size of the aggregate, shall be used so as to allow development of bond in the splices. The extra cost of such special concrete shall be deemed to have been included in the unit rate for the main concrete and shall be paid at the same rate.

R.8: ADDITIONAL IMPORTANT POINTS FOR ATTENTION

- I) Before the reinforcement bars are fixed in position lit shall be verified as to whether are of the specified grade, size and are cut and bent in accordance with the relevant drawings and specification. For any mistake, the contractor shall be solely responsible and shall made himself liable for all rectifications of mistake at his risk and cost.
- II) Reinforcement bars shall be accurately placed and secured in positions by means of built in concrete blocks, metallic chairs, hangers spacers or other suitably approved device at sufficient close intervals so that they will not sag between supports and shall not be displaced during placing of concrete or any operation of work.
- III) Before standing concreting, the contractor shall ascertain that the measurement of the reinforcement placed have been recorded by the authorize representative of the dept. and the Engineer-in-charge at his discretion may order dismantling and reconstruction of the work where necessary. The Engineer-in-charge or his authorized representative shall record the fact of his having checked and approved the reinforcement in the order book kept on the work before allowing concerting to commence.

R.9: MODE OF MEASUREMENTS

The reinforcement shall be paid as the weight on Kg/m. of the actual quantity of steel reinforcement placed in the structure arrived at by measuring the length of the bars multiplied by the standard weight per unit length for the particular diameter of bar (as shown in the bar bending schedule) The standard weights of the bars shall be as follows.

Diameter of bar in mm.	Weight in kg/m
6	0.22
8	0.39
10	0.62

12	0.89
16	1.58
18	2.00
20	2.47
22	2.98
25	3.85
28	4.83
32	6.31
36	7.99
40	9.86
45	12.49
50	15.41

In case of deformed bars, the weight per unit length for a bar for specified diameter (in nominal size will be as shown in the manufacture catalogue). The issue of deformed bars to the contractor and the payment to the contractor will be done on the basis of weight given by the manufactures.

This shall include the quantity in laps, hooks and bends. It shall not include weight of metallic chairs, hangers spacers or other suitable devices, if use. The length of bar shall be measured to the nearest 10 cm. A fraction less than 5 cm shall be neglected and fraction of 5 cm or more shall be taken as 10 cm.

The cost of the wire used for tying the reinforcement shall be deemed to be included in the rate for the item of reinforcement and shall not be paid separately. The item rate shall be exclusive of chair, hanger, space etc. Separate measurements for supports steel shall kept and payment shall be made at issue rate per schedule "A" Surplus steel in pieces longer than 2,.50 m out of the steel issued to the contractor will be taken back at the rate at which it was issue to the contractor The convenience to the placer of original issue of steel being at the contractor cost. The contractor shall return such cut pieces to the department periodically.

CEMENT CONCRETE

C1.1: SCOPE OF WORK

The work covered by this item shall consist of

- i) Furnishing all materials equipment and labour for the manufacture, transport, placing curing of concrete and performing all the functions necessary and ancillary thereto, including finishing the concrete to the required shape as per drawing.
- ii) Erection of all embedded parts in the block outs for gates, irrigation outlet, pipes, construction sluice and other metal works instrumentation etc., shall be carried out by other agencies. The contractor shall initially keep adequate block outs, recesses etc., to house such embankment and subsequently concrete the block outs or recesses around the erected steel work with concrete of grade M-2010. The item will not be paid separately and shall be deemed to be included in the unit rate of concrete or masonry surrounding the structure.
- iii) Providing and removal of all form work compressing, furnishing all materials, equipment and labour for the manufacture, transport, erection, keeping in place with necessary fixture and support oiling complete.

C1.2 The following specifications will apply in general to all types of concrete work including RCC work.

C1.3.1: SOURCE AND SIZE

The sand used for mortar shall be natural river sand. The maximum size shall be limited to 5 mm.

C1.3.2: QUALITY

The sand shall consist of hard, dense, durable uncoated gritty material obtained from rock fragments. It shall be free from injurious amounts of just lumps, soft and flaky particles shale, alkali, organic matter, loam mica and other deleterious substances. The maximum percentage of deleterious matter in sand as delivered for use in mortar shall not exceed the following values.

PERCENTAGE BY WEIGHT

Material passing No. 20 sieve BS or (IS No 8, average opening 0.0029)	3%
Shale	1%
Coal	1%
Clay lumps	1%
Total of other deleterious substances such as alkali, Mica coated grains soft and flaky particles.	2%

The sum of percentage of all deleterious substances shall not exceed 5% by weight. The sand shall be free from injurious amounts of organic impurities. Sand producing a colour darker than the standard in the calorimetric tests for organic impurities shall be rejected. If the impurities are beyond the acceptable limits stated above the sand shall be washed or otherwise cleaned to the entire satisfaction of the engineer-in-charge at the cost of the contractor.

C1.3.3: MECHANICAL ANALYSIS

The natural sand shall be well graded and the sieves analysis of sand shall generally confirm to the following limits of gradation.

ASTM sieve No. ISS No.	Equivalent weight retained on sieve	Cumulative percentage by
3/8	3/8	Nil
4	480	0 to 30

8	240	10 to 30
16	120	50 to 65
30	60	65 to 90
50	30	90 to 99
100	15	99 to 100

The gradation curve of the natural sand shall lie within the enveloping curve gradation specified as above.

C1.3.4

a) FINENESS MODULUS

The fineness modulus shall be computed by adding cumulative percentage of sand retained on the 6 standard screens from No 4 to 100 inclusive ASTM Standard (or 480, 240, 60, 30 and 15 sieve of the ISI specifications) and dividing the sum by 100. Any deviation from the specified range of gradation and fineness modulus shall not be permitted without the written permission of the Executive Engineer. Corrective measures if any required for improving the fineness modulus shall be arranged by the contractor at his own cost as directed by the Engineer-in-charge.

b) NATURAL SAND

Natural sand shall have a fineness modulus ranging from 3.6 to 3.9 without any admixtures.

c) ALLOWANCE FOR BULKAGE

If the sand as obtained from quarry or after its washing is found to be moist, bulkage will be measured and allowed, provided sand is staked at site at least for 48 hours before use. Bulkage of such a stack will be measured regularly as directed by the engineer-in-charge and according to these observations. Observations for bulkage will be made as per Indian Standard procedure and allowance will be made as under:

Bulkage observed	Allowance to be made
Below 5 %	Nil
5 to 10	5 %
10 to 15	10 %
15 to 20	15 %
20 to 25	20 %
25 to 30	25 %
30 to 35	30 %

C1.4: COARSE AGGREGATE

C1.4.1 Coarse aggregate for concrete shall consist of hard, dense, durable, uncoated, crushed and shall be free from injurious amount of soft, friable, thin, elongated or laminated pieces, alkali organic matter or other deleterious substance. Flaky and weathered stones shall not be used. Aggregate shall be tested in accordance with tests prescribed in IS 516-59 and 1999-59 or subsequent revisions. Use of gravel fraction left behind after sieving river sand shall be permitted in the blending of coarse aggregate if asked for after suitable experiments and without rate variation.

C 1.4.2: IMPURITIES

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No. of corrections

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The broken stone shall be free from dust and dirt and shall be washed if necessary to ensure that all faces of the stone are perfectly clean. The maximum individual percentage by weight of deleterious substances in any size of coarse aggregate shall not exceed the following values:-

Materials passing through No.

100 screen (ASTM)	One
Shale	One
Coal	One
Soft Fragments	One
Clay lumps	One fourth
Other deleterious substances	One

The sum of percentages by weight of all the deleterious substance in any size shall not exceed five.

C1.4.3: GRADING

a) The approximate range in grading of coarse aggregate shall be as under:

Maximum size of Aggregate	Nominal Range mm	Percentage of coarse aggregate fraction (mm)				
		75	150	300	600	75
20 mm	10 to 20	-	-	100	55 to 67	33 to 35
40 mm	20 to 40	-	40 to 50	50 to 60	23 to 40	18 to 30
80 mm	40 to 80	20 to 36	16 to 36	35 to 44	10 to 30	13 to 28

- b) The coarse aggregate shall be of such a size as shall be retained on a mesh of 5 mm square.
- c) The grading between the limits specified above shall be such as shall produce a dense concrete of the specified proportions and consistency that will work readily in the position without segregation and without the use of an excessive water content.

C1.5: WATER

Water used in concrete shall be clean and free from objectionable quantities of slit organic matter, alkali, salt and other impurities which are likely to be injurious. The turbidity of water or mixing shall not be more than 20100 parts per million and shall preferably be lower.

C1.6 : GRADING AND RELATIVE PROPORTION

The grading of sand and coarse aggregate is liable to be modified beyond the limits specified above to suit local conditions in order to obtain required strength and workability. The grading as well as relative proportion of sand and coarse aggregate are liable to be changed at the discretion of the engineer-in-charge in order to produce dense concrete of required strength which can be worked readily into position without segregation in a given ratio of cement and total aggregate (sum of volumes of sand and of coarse aggregates). No compensation is payable for adjustment in relative proportion and grading of aggregates. Air entering agent if considered necessary will be supplied by the department free of cost. This shall be mixed in concrete in the manner and quantity as may be directed by the engineer-in-charge without any extra cost.

C1.7 (A): MIX VARIATION AND CLASSIFICATION

In case the ratio of cement to total aggregate is modified by changing the cement content under specific orders of the engineer-in-charge the contractor shall be paid at increased or reduced rates according to the variation in the cost of cement alone, resulting from change in mix proportion calculated as per table given below.

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No. of corrections

Executive Engineer

The variation in cost of cement will be calculated according to the rate for cement at Rs. 210/-50 kg and the change in the requirement of cement by weight per cubic meter volume of concrete as determined by the following table.

C1.7 (B): FOR WORK COSTING MORE THAN RS. 50.00 LAKH

Cement variation in the concrete mix shall not constitute an extra item. In case the cement to total aggregate is modified by changing the cement content under specific order of the engineer-in-charge, the contractor shall be paid at increased or reduced rates according to the variation in the cost of cement alone, resulting from change in mix proportion calculated as per table given below at the rate as given in Annexure 'A' of detailed tender notice.

Sr. No.	Nominal mix proportion of the concrete by volume	Size of aggregate	Equivalent ISS mixes	Assumed cement consumption one cubic meter of concrete
1	1:2:4	20 MSA	M 150	282 kg
2	1:3:6	40 MSA	M 100	220 kg

C1.8: ADMIXTURE

Any admixture for concrete supplied by government free of cost at the departmental store at dam site colony shall be transported, handled, and mixed by the contractor at no extra cost. Such admixture shall not be considered as amounting to variation in the mix and is not covered by the mix variation clause in this section.

C1.9: BATCHING

Proportions of concrete items mentioned in Schedule 'B' are to be designed on the basis of weight volumetric proportion.

After establishing the bulk densities of the aggregates, all aggregated shall be batched by volume by measuring with boxes. The bulk densities of coarse aggregate shall be established by observation at such intervals, as may be directed by the engineer-in-charge. The bulk density of sand shall be verified at least once daily and bulkage allowed by a procedure approved by the engineer-in-charge. Measured quantity of water shall be added.

C1.10: FORMS

1.1.10.1: GENERAL

a) Forms to confine the concrete and shape it to the required line shall be used whenever, necessary. The form shall have sufficient strength and rigidity to hold concrete and to withstand the pressure of ramming and vibration without excessive deflection from the prescribed lines the more so when the concrete is vibrated. The contractor shall have to get the design and drawing of the centering approved from the engineer-in-charge before erection. Form work shall be of any of the following types :- a) Wooden shuttering with steel plate lining.

b) Steel Shuttering

Wooden shuttering will be allowed if it is free from warping and is fabricated true to line and shape. The decision on the engineer-in-charge as to the suitability of wooden shuttering as per (a) above to be used by the contractor will be final and binding on the contractor. The surface of all forms in contact with shall be clean, rigid, watertight and smooth. Suitable device shall be used to hold corners, adjacent ends and edges of panels of other forms together in accurate alignment.

C1.10.2: REUSE OF FORMS ETC.

Form required to be used more than once shall be maintained in serviceable conditions and shall be thoroughly cleaned and smoothed before reuse. Where metal sheets are used for lining forms, the sheet shall be placed and maintained on the forms with minimum amount of wrinkles, lumps or other imperfections. All forms shall be checked for shape and strength before reuse.

C1.10.3: ERECTION AND REMOVAL OF FORMS

- I. Before placing concrete the surface shall be oiled with suitable non staining oil such as raw linseed oil so as to prevent sticking of concrete and to facilitate the removal of form.
- II. The oil shall cover the form fully and evenly without excess over drip. Care shall be taken to prevent oil form getting on the surface of the construction joints and on reinforcement bars. Special care shall be taken to oil thoroughly the form strips for narrow grieves so as to prevent/swelling of the forms and the consequent damage to concrete prior to or during removal of forms. Immediately before concrete is placed care shall be taken to see that all forms are in proper alignment and the supports and fixtures are thoroughly secured and tightened.
- III. Where forms for continuous surface are placed in successive units, the forms shall fit tightly over the complete surface so as to prevent leakage of mortar from the concrete and to maintain accurate alignment of the surface.
- IV. Form shall be left in place until their removal is authorized and shall then be removed with care so as to avoid injury to concrete.
- V. Removal of form shall never be started until the concrete is thoroughly set and hardened adequately to carry its own weight, besides the live load which is likely to come on the work during construction. The length of time for which the forms shall remain in place shall be decided by the engineer-in-charge, with reference to weather conditions, shape and position of the structure or structural member and the mature and amount of dead and live load. In normal circumstances forms shall be strucked after the expiry of the following periods.
 - a) Beam sides, walls columns (unloaded) 72 hours
 - b) Slabs, and arches (props left under) 04 days
 - c) Slabs, and arches 10 days
 - d) Beams soffit (props left under) 01 day
 - e) Props to beams. 21 days
 - f) Lean concrete (side) 02 days
 - g) Tunnel lining 24 hours

In no case shall forms be removed until there is assurance that removal can be accomplished without damaging the concrete surface. No loads will be allowed to damage the concrete surface. Heavy load shall not be permitted until after the concrete has reached its designed strength. The forms shall be removed with great caution and without harming the structure or throwing heavy forms upon the floor.

C1.11: MIXING

The ingredients of concrete shall be batches as mentioned in Para 1.9 and properly mixed in mixers, designed so as to positively ensure, uniform distribution of all the component material throughout the mass, at the end of the mixing period. The mixing of each batch shall continue for about one and half to two minutes depending upon the revolutions per minutes of the mixer and experience, after the materials except for the full amount of water are up the mixer the minimum mixing period specified above assumes proper control of the speed of the rotation of the mixer and of the introduction of the materials, including water. The mixing time shall be increased at the discretion of the engineer-in-charge when the charging operation fail to produce concrete of the required uniformly or composition and consistency within the batch and from batch to batch

contractor shall not be entitled for any extra payment for such increase in mixing time. Excessive mixing requiring the addition of the water to preserve the required concrete consistency shall be avoided if the mixing and charging operations are such that the required uniformity of the concrete is obtained in shorter mixing time than the minimum specified without sacrifice of needed workability and the mixing time may be shortened under order of the engineer-in-charge mixing shall be done by mechanical means only.

Materials corresponding to one bag mix or half bag mix (depending upon the mixer capacity) shall be placed in the skip in sequence of metal cement and sand. The skip shall then be emptied in to the drum and specified quantity of water added to material I drum.

C1.12: TEST FOR CEMENT CONCRETE

C1.12.1: STIPULATED CRUSHING STRENGTH

The crushing strength in kg per square cm on works cubes, at 28 days, for each nominal mix shall be as under:-

Nominal Mix	Maximum size of Aggregate mix	Equivalent ISS	Stipulated crushing strength Kg/cm ²	
			7 days	28 days
1:1.5:3	20 & 40	M 200	135	200
1:2:4	20 & 40	M 150	100	150
1:3:6	40	M 100	75	100

C1.12.2: PRELIMINARILY LABORATORY TEST

Preliminary tests of cubes shall be carried out in the laboratory well in advance of commencement of work. These tests should indicate an adequate margin over the stipulated strength specified in Para C.1.12.1.

C1.12.3: WORKS TEST ON CONCRETE

Tests for crushing strength shall be made on standard cubes as per the relevant Indian Standard Specifications. For works tests samples shall be taken on the job as and when directed. For work tests, samples shall be taken once for every 30 cubic meter of each type of concrete laid at least three times a day. The sample for work test is defined as a set of three cubes. The materials required for the samples (concrete, cement, sand and coarse aggregate) shall be supplied by the contractor free of cost and collection of sample, casting of cubes and curing and testing shall be carried out by the department at contractor's cost.

C1.12.4: STANDARD OF ACCEPTANCE

No test of "work test" cubes shall have at 28 days a crushing strength below 85 % present of the stipulated crushing strength. The average of the crushing strength of the three work test cubes shall be taken as the crushing strength of the set.

For every set "Work test" Cubes which gives a 28 day crushing of less than 85% of the stipulated crushing strength a value of 30 cubic meter of concrete shall be paid at such reduced rate as may be decided by the engineer-in-charge.

Each sample of work test cubes shall be assumed to represent 30 cum concrete and corresponding quantity of concrete showing crushing strength less than stipulated strength shall be paid at reduced rates as under.

Equal to or more than 95%

At full rates in occasional cases.

Equal to or more than 90%

5% reduced rates

but less than 95%

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No. of corrections

Executive Engineer

Equal to or more than 85%
but less than 90%

10% reduced rates

The reduced rates shall be approved by the Superintending Engineer if the crushing strength fails below 85% of the stipulated crushing strength, then the quantity of concrete represented by these samples will not be paid for defective parts. If noticed shall be removed and redone by the contractor at his cost. Unit for expectance or these tests will be one working season.

In addition to 28 days strength test, engineer-in-charge may at his discretion make 7 days strength tests and or 3 days (accelerated curing) strength tests and fix up the exact relation between such strength and 28 days strength after studying the actual values realized. If at any time the tests indicate that the strength may not be achieved as specified, the engineer-in-charge shall have authority to suspend the work of laying concrete until the reasons for low strength have been investigated and corrected. The contractor shall comply therewith without such suspension being made a reason for any claims. The Engineer-in-charge may at his discretion also order suspension of work when the variation in the strength of individual work test cubes from the average of the set is excessive. The contractor shall comply with such suspension until the reasons for the variations are investigated and corrected and such suspension shall not be accepted as reason for any claim.

C1.12.5: SLUMP TESTS

In order to test the consistency of the mixed concrete, slump tests shall have to be made by the contractor when and where required by the Engineer-in-charge and as per the Indian Standards Specifications, the allowable slumps shall be decided by the engineer-in-charge depending upon the location of the concrete.

C1.13: PLACING CONCRETE

C1.13.1 Concrete shall be placed only in locations where authorized and no concrete or mortar shall be placed until form work, installations of embedded parts, preparation of surfaces or necessary clean up had been done and approved.

C1.13.2: ROCK SURFACE

Rock surface upon or against which concrete is to be placed, shall be prepared as specified in Section 3 ED.

C1.13.3: MASONRY SURFACE

- i) Masonry surfaces on which or against which concrete is to be placed shall be prepared as described in relevant Para in Section M. The unit rate for masonry shall cover the cost of such preparations.
- ii) If the old layer of masonry which has been paid for is required to be removed as mentioned in relevant Para in Section-9M it shall be back filled with concrete along with the upper concrete layer at no extra cost.

C1.13.4: CONCRETE SURFACES

Before laying the concrete, the surface of the concrete in day to day work, shall be cleaned by wire brush and jets of water so that surface is thoroughly cleaned and wetted but pools of water are avoided. If the old concrete surface has remained exposed for more than two weeks it shall be prepared in the same manner as indicated in Para 3.4 of section 3.2 and rough ended by chipping to a depth of one inch and the surface coated or covered with a layer of cement mortar 1:2 for a depth of 5.15.7.60 cm. The unit rate of concrete (old) shall cover the cost of all such preparations and also of the cost of cement mortar. The concrete removed for roughening shall not be paid for.

C1.13.5: ALL SURFACES

- I) The cleaned rock masonry or concrete surface shall be applied with cement slurry and then cement mortar cost as described in relevant Para of Section-9 M.

- II) The first few batches of concrete may, if so required contain half the regular size of coarse aggregate, without any extra claims.
- III) The cost of such preparation work stands included in the unit rate of cement concrete.

C1.13.6: TIME FOR USE

All concrete shall be placed directly in its final position within 30 minutes of mixing. Any concrete which has become so stiff that proper placing cannot be assured without re-tampering shall be wasted and shall not be paid for. All surface of forms and metal work including reinforcement bars that have become incrustated with dried mortar or grout concrete previously placed shall be cleaned of all such mortar or grout before surrounding or adjacent concrete is placed.

C1.13.7: METHOD OF PLACEMENT

Before starting placing of concrete it should be made certain that the transporting and placing equipment is there and in proper repair and that equipment along with the operating staff is arranged to deliver the final concrete in the positions without undue delay objectionable segregation. The methods and the equipment used for transport and placing of concrete shall be such as will permit the delivery of the concrete of the required consistency into the work without objectionable segregation porosity or excessive loss of the workability. Excessive segregation from whatever cause shall be prevented in handling and placing operation by avoiding or controlling later movement of the concrete as in dumping at an angle of depositing continuously at one point and allowing the concrete to flow. Concrete shall not be dropped from excessive heights and the free fall should be kept to a minimum concrete shall be deposited in continuous horizontal layers in a thickness of approximately 30 cm. in normal work to 45 cm. (Eighteen inches) for mass concrete except that nothing herein shall be constructed to permit placement of the additional horizontal layers of mass concrete before the entire area to be concerned is covered by previous layers. On flat horizontal surfaces, where conjunction of steel near the forms makes placing of concrete difficult, a mortar of the same cement, sand ratio as used in the concrete shall be first deposited to cover the forms and shall stand, included in the unit rate of concrete before the entire area to be concrete is covered by previous layers.

C1.13.8: RATE OF PLACING

Concreting should continue without available interruption until the structure of section is completed until satisfactory construction joints can be made. Location of construction joints shall be as directed by the engineer-in-charge. Concrete shall not be placed faster than the placing crew can compact it properly. In placing thin members and columns, precaution shall be taken against to rapid placement which may result in movements, or failure of the form due to excessive lateral pressure. An interval of at least 12 hours and preferably 24 hours should elapse between the completion of column and walls and the placing of slabs, beams or girders supported by them in order to avoid cracking due to settlement all concrete shall be placed in approximately horizontal lifts not exceeding 1.25 meter in thickness per day. Concrete in arches should be done in strip extending from one pier to another. No thorough joints shall be kept in the span.

C1.13.9: CONCRETING AT NIGHT TIME

If concrete is to be placed at night adequate lighting arrangements shall be made as directed by the Engineer-in-charge.

C1.13. 10: CONCRETING AT DURING RAINS

When concreting is required to be done or continued while it is raining it shall be seen that concrete is not damaged due to rain while it is being transported and placed. After placing the green concrete, the same shall be adequately covered for a period of 24 hours when it will be capable of being cured by splash of water. The surface of fresh concrete should be maintained on

a slope sufficiently to result in the self drainage of rain water the work shall however be discontinued when the rain is so severe that the water collects into pools or washes the surface of the fresh concrete and it is not possible to provide adequate shelter.

C1.14: COMPACTION

C1.14.1 All concrete shall be vibrated by mechanical vibrator or approved type so as to ensure dense concrete. Hand tamping and Roding, shall not be used for compaction of concrete except in special circumstances with the express permission of the engineer-in-charge. When immersion type vibrators are used, they shall be used vertically and at about 50 cm apart. The vibrator shall be inserted to the full depth of the newly laid concrete layer. The vibrator shall however, not reverberate a concrete which has commenced its final set. Special care shall be taken to see that the vibrator touching the reinforcement of embedded part does not disturb the concrete below, which has commenced its final set. The concrete shall not be vibrated excessively so as to cause segregation.

C1.14.2 Each layer of concrete, for surfaces which are required to be smooth and for all surfaces which will be permanently exposed to the weather, and for all surfaces next to embedded metal work, shall be worked and vibrated by mechanical vibrators of approved type only so as to obtain a concrete of maximum density and imperviousness and to closely assure contact of the concrete with forms, reinforcement bars and other embedded parts. If the methods of transporting and placement have been conducive to air entrapment segregation or stiffening the work of compaction should receive special attention.

C1.14.3 For concrete surface exposed to flow of water special precaution shall be taken to minimize and to prevent surface pitting and protrusions without resorting to over manipulation of the concrete mix to the forms. No plastering for getting a smooth finish shall be permitted to these locations. Any protrusions shall be ground smooth.

C1.15: CURING AND PROTECTION

All concrete shall be protected against injury until final acceptance. Exposed finished surface of concrete shall be protected from the direct rays of sun for at least 72 hours after placement concrete shall be kept continuously moist for not less than 21 days. Construction joints shall be cured in the same way as other concrete and shall also be kept moist for at least 72 hours prior to the placing of additional concrete upon the joints. Approximately horizontal surfaces shall be cured by sprinkling, pointing or by covering by damp sand or maybe cured by the use of wet quilts or mats. Vertical surfaces shall be cured by covering with wet jute bags. If damp sand or quilting is used for curing it shall be removed completely later. Should the concrete perish that is become dry or powdery through neglect of watering such work shall be demolished and rebuilt at no extra cost. If the curing arrangements of the contractor are not satisfactory the engineer-in-charge may in his discretion engage labour and provide material and equipment for curing and recover expenditure thus involved from the contractor.

C1.16: FINISHING

C1.16.1: GENERAL

Finishing of formed and unformed surface shall be performed only by skilled workmen. All exposed concrete surface shall be cleaned of all incrustations of cement mortar or grout and unsightly stain shall be removed.

C1.16.2: FORMED SURFACES

Surface of concrete finished against forms shall be smooth, free from projection and filled thoroughly with mortar, immediately upon removal of forms, any unsightly ridges or fins shall be

removed and any local bulging on exposed surfaces shall be remedied by tooling a rubbing all holes left by the removal of fasteners, shall after being reamed with toothed reamer be neatly filled with dry patching mortar. All porous and fractured concrete and surface concrete to which additions are required to bring it to the prescribed lines shall be sharp edged and keyed and shall be filled to required lines with fresh concrete or dry patching mortar. Where concrete used for filling the chipped openings, these shall not be less than 8 cm in depth and the concrete filling shall be reinforced and followed to the surface of the openings. Honeycombed surface and surfaces which give a hollow sound shall be rectified by guniting at the contractor's cost, within the unit rate accepted for concrete.

C1.16.3 Dry pitching shall consist of one part of cement to 2 parts of sand by volume and just enough water, so that the mortar as used, will stick together on being molded into a ball by a slight pressure of the hands and will not exclude water when pressed but will leave the hands damp. The mortar shall be placed in layers of not more than 25 mm thickness. After being compacted each layer shall be roughened by being scratched to provide an effective bond, with the successive layers. The last or finishing layer shall be smooth to form a surface continuous with the surrounding and shall be sound and free from shrinkage cracks.

C1.16.4 (a) FINISHING PERMANENTLY EXPOSED SURFACES

Except otherwise specified or directed all permanently exposed concrete surfaces and other waterway surfaces requiring durability under water (except the outlet) shall be finished in the following manner, immediately up on the removal of the forms, the surface shall be wetted and all surface pits and air bubbles filled by the rubbles filled by rubbing mortar composed of cement and fine sand in proportion 1:2 into the pits with burlap so as to secure a uniformly dense smooth surface. The ribbing shall be performed in such a way as to leave the surface free from mortar not used for filling the pits should the filling operations be unduly delayed and the surface of the pits becomes coated with, dirt or other contaminating materials they shall be thoroughly cleaned and washed and shall be maintained in a moist condition, until the mortar filling is placed.. Such cleaning shall be done by means of air and water jets and chipping or brushing or other satisfactory means without damaging the surrounding concrete. All operations in connection with the filling of surface pits shall be handled as quickly as practicable to minimize the period during which the concrete and mortar filling are exposed to drying. When the treatment of a surface has been completed the surface shall net and of the same colour and texture as the adjoining surface.

(b) FINISHING OF CONCRETE SURFACE IN OUTLETS

Special finish as hereafter specified shall be done for the concrete surface in outlets. The maximum allowable deviations for the finish are as listed below.

Type of irregularity	Allowance in mm
Depression	Nil
Gradual	6
Abrupt	6 parallel to flow and 3 not parallel to flow

Abrupt irregularities are defined as off sets and fines caused by displaced or misplaced from sheeting lining or form section by loose knots in forms otherwise defective or lumber. All others (except depressions) are classed as gradual irregularities. Gradual irregularities shall be measured

with five feet template consisting of a straight edge for plain surface or its equivalent for curved surfaces. Grinding or storing shall be done as required to bring the irregularities within the specific limits as above.

C1.16.5: FINISHING CANCELED SURFACE

For exterior concealed surfaces below ground or backfill level or like surfaces not otherwise specified no finish is necessary except that sand streaks, metal pockets, honeycombing other imperfections which are of consequence affecting strength water tightness or protection of reinforcing steel from corrosion, shall be corrected and repaired as prescribed for formed surface.

C1.16.6: FINISHING UNFORMED SURFACE

Unformed surface shall be finished by one or more of the operations of screening floating and troweling. Working of the surfaces should be done at proper time employing experienced men and should be just sufficient to produce the desired finish. Screening which gives the surface its approximate shape by striking off surplus concrete immediately after compaction shall be accomplished by moving a straight edge or template with a saving motion across wood or metal strips that have been established as guides. Where the surface is curved as special care should be brought true to form and grade by working it sparingly with a wooden float if a coarse textured finish is desired or if the surface is to be steel trowel led a second or final floating shot be performed after some stiffening has occurred and the surface moisture film or shine has disappeared. Where a smooth dense finish is desired floating shall be followed by steel troweling some time after moisture film, or shine has disappeared from the tabled surface and when the concrete has hardened sufficiently to prevent fine material and water from being worked out the surface. Excessive troweling particularly at early time shall be avoided.

C1.16.7: DAMAGE DUE TO FLOODS GOVT. NOT RESPONSIBLE

In case of damage of any of the concrete works due to floods, Govt. will not be responsible and whatever corrective measures are required to be adopted shall be done by the contractor at his cost. Provision of paragraph 1, 12, 19 of Masonry Section-9 shall apply.

C1.17: PAYMENT

C1.17.1 Payment shall be on the net quantity of concrete after deducting quantities for opening and other class of work. No deduction shall be made for anchor bars, reinforcement, grout holes and bore or weep holes or any opening not exceeding 100 cum in cross section. Rate shall be subject to paragraph C.1.12.4. above. Measurements of concrete shall be taken within the specified pay lines for the structure or as indicated on the drawings. Any concrete placed in the excavation beyond the line of structures to void use of forms shall not be paid for. The quantity of item shall be computed by using prismoidal formula only.

Block outs and slots necessary for embedding the foundation bolt and other embedded parts shall be provided by the contractor without any extra cost. The payment for from work required for concrete if any shall be presumed to be included in the payment of concrete item.

MISCELLANEOUS

DEWATERING ARRANGEMENT FOR FOUNDATION:

1: SCOPE

The item shall include all dewatering work required in manner herein after specified.

1.2: DESIGN ETC.

The contractor shall arrange sufficient number of water pumps (of sufficient horse power) for dewatering within reasonable period.

CONTRACTOR TO DEWATER WHENEVER REQUIRED

1.2.1

The area under all works pertaining to the structure and appurtenance and the adjoining areas as necessary shall be maintained free from water. The area shall also be maintained free from water after any part of the work is completed, for inspection, safety, and installation by Government or for any other reasons determined as necessary by the engineer-in-charge. The contract shall pump all water from the site of the works and shall keep the foundation free of water, while excavating, concreting and placing masonry and continue to keep the work, free of water for period as may be required for proper setting or mortars or concrete etc., or otherwise required for completion of works.

1.2.2

The contractor shall not be entitled to any claims or damages on account of or by reason of any amount of water leaking through, under or around the coffer dams, diversion or protective works or overtopping of the diversion works, or from the construction sluice.

The river will be diverted through the portion of masonry spillway or by suitable diversion in order to enable earth-work of the dam to progress, ahead of the masonry dam. Any percolation caused due to this shall be covered by the rate for item concerned.

The contractor shall provide and maintain temporary bulk heads to protect galleria shafts and other openings in the structures from possible flooding from any reason whatsoever.

1.3: MODE OF PAYMENT

If the contractor is required to do dewatering number of times during the period of his contract the cost of such provision shall be deemed to have been included in the rate quoted by the contractor for excavation item.

2.1.8: BACKFILL OF IMPERVIOUS MATERIAL

The impervious material should have sufficiently low coefficient of permeability and at the same time desired dry density and shear strength measured in the laboratory selected material shall be quarried as directed by the Engineer-in-charge. The backfill shall be placed as per paragraph above and paid as per paragraph above.

3.1: PROVIDING AND FIXING GUARD STONES

3.1.1: SCOPE

The item includes all tools, plants, labour and materials required for preparing transporting painting of guard stone of size 200 x 200 x 400 mm. and performing all the functions necessary and ancillary thereto.

3.1.2: MATERIALS

The stone shall be of the specified type of the stone and of the standard size and shape.

The portions of the stones exposed above the ground shall be rough tooled as directed. The stones shall be embedded in 1:4:8 cement concrete up to 0.3 mete/ below the ground. The exposed part of the stone shall be given two coats of white wash & if necessary suitable words and figures painted on it are as directed by the Engineer-in-charge. Any excavation necessary for

fixing of the guard stone and laying of the cement concrete bedding shall be done by the contractor at his cost.

3.1.3: MODE OF MEASUREMENT AND PAYMENT

Contract rate shall be for one guard stone fixing in position as mentioned here in before. The measurement shall be for the number of guard stones fixed in position.

3.1.4

Painting to Gauge Plates: - Painting to Gauge Plates in stilling basin and body should be as specified by the Engineer-in-charge.

3.1.5 Mode of Payment: - Mode of Payment shall be made on square meter basis.

SPECIAL CONDITIONS FOR THE MATERIAL TO BE BROUGHT BY THE CONTRACTOR

All the material, such as cement, steel, etc. to be brought by the contractor for the work shall be reported to the engineer-in-charge only, furnishing the necessary test report from laboratory / factory.

Cement shall be of 43 grade from L & T / Manikgarh / ACC only confirming to IS 8112 of 1989 and the concrete strength to confirm as per IS 456 of 1978.

The steel supplied by the contractor shall be entirely HYSD bars and confirm to IS 432 (part One) of 1966, and 1139 of 1966 and IS 1786 of 1976 amended from time to time.

Required quantity of explosives shall be brought by the contractor from the government authorised department. Documents of such purchases shall be furnished to the engineer-in-charge only. Secured magazine is to be kept on work-site for all blasting operations.

The structural steel to confirm IS revision 800 of 1962 thereof and subsequent.

The member of construction committee shall be offered full access to the site at all times to monitor the progress of the work and the quality control activities and concerns expressed by the construction committee to the site engineer either verbally or in writing shall investigated immediately by the site engineer and he shall take the appropriate action.

ROYALTIES

The contractor shall arrange for the materials from approved quarries. It is necessary for the contractor to obtain permission from revenue authorities or other relevant authorities before removing the materials. If the government desires to acquire quarry for the use of government work, it would be so acquired and the contractor shall abide by the procedure regarding royalty for materials vide

महसुल व वन विभागाकडील दि.11 मे 2015 चे शासन राजपत्रानुसार सुधारित स्वामीत्व शुल्क रू.400/-प्रती ब्रास प्रमाणे (खोदकामातून उपलब्ध होणारे साहीत्य व त्याच तलावाचे Submergence Area मधून खोदून साहीत्य त्याच तलावाचे कामासाठी वापरणेत येत असेल तर स्वामीत्व शुल्क निरंक राहिल)

Royalties paid by the contractor to the revenue or relevant authorities will however be entitled to the contractor as permissible and after submitting receipts of the same. The payment for royalty charges made by the contractor to revenue department after submitting revenue receipts will be released to the contractor under this item through his running bills as per the quantity executed; quantity of materials will be calculated on executed quantity of relevant items and rates.

In case of quarries in private land after consent of owner it will be for the contractor at his cost to arrange for quarrying of materials / department will only pay according to the rate of royalty charges incorporated in schedule "B" of tender No price escalation will be paid for on this item.

Royalty charges on materials brought by the contractor will be paid at fixed rates under the quoted item for this purpose, no additional amount or rate will be payable to the contractor. The receipt of royalty charges paid to the revenue department will however be used to confirm the payment made by the contractor for the materials used for the tendered work however the payment for the executed quantities will only be made at the quoted rate of this item in schedule "B".