

**ICHALKARANJI TEXTILE DEVELOPMENT CLUSTER LTD.
ICHALKARANJI.DIST KOLHAPUR.**

TENDER NO. 3
CONCRETE FLOORING FOR ROAD SHOULDER FROM CH. SHIVAJI STATUE TO
TELEPHONE OFFICE

- | | |
|---|--|
| 1. ESTIMATED COST: | Rs. 8.48 Lacs |
| 2. EARNEST MONEY DEPOSIT: | Rs. 8480/- |
| 3. INITIAL SECURITY DEPOSIT: | Rs. (2% +1%EMD) |
| 4. TOTAL SECURITY DEPOSIT: | Rs. (3% +5%) |
| 5. TIME LIMIT: | Rs. 1 MONTHS |
| 6. TENDER COST: | Rs. 1000 /- |
| 7. CONSULTING ENGINEER | TECHNICAL WING OF CLUSTER. |
| 8. NAME & ADDRESS OF
THE CONTRACTOR: |
.....
..... |
| 9. DATE OF ISSUE : | 11 th April. 2007 to 20 th April. 2007 |
| 10. LAST DATE OF SUBMISSION : | 21 st April. 2007, UP TO 2.00 P.M. |

**ICHALKARANJI TEXTILE DEVELOPMENT CLUSTER LTD.
ICHALKARANJI.**

**Upgradation of Infrastructure facilities at Textile Cluster, Ich.
Maharashtra.**

**Project under Industrial Infrastructure Upgradation scheme (IIUS)-
2003.**

**Ministry of Commerce & Industry.
Government of India.**

**TENDER DOCUMENTS FOR THE WORK OF-
CONCRETE FLOORING FOR ROAD
SHOULDER FROM CH. SHIVAJI STATUE TO
TELEPHONE OFFICE**

**ICHALKARANJI TEXTILE DEVELOPMENT
CLUSTER LTD., ICHALKARANJI.**

5/617, SWIMMING POOL PRIMISES, NEAR VED BAVAN,
ICHALAKARNJI-416115. DIST.KOLHAPUR. (MAHARASHTRA).

Phone No. : (0230)2421009, FAX: (0230)2421143

ICHALKARANJI TEXTILE DEVELOPMENT
CLUSTER LTD. ICHALKARANJI

CONCRETE FLOORING FOR ROAD SHOULDER
FROM CH. SHIVAJI STATUE TO TELEPHONE
OFFICE.

TENDER DOCUMENT

ICHALKARANJI TEXTILE DEVELOPMENT CLUSTER LTD. ICHALKARANJI
5/617, SWIMMING POOL PREMISES, NEAR VED BHAVAN, ICHALKARANJI

Issue Letter of Tender Documents

The set containing the tender documents for the construction work of

1. Concrete flooring for road shoulder from Ch. Shivaji statue to Telephone office

Is Issued to

Name & Address of the tenderer

OWNER

Note

Contractor shall sign all the pages of the Tender documents, before submission of the Tender Document.

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ICHALKARANJI TEXTILE DEVELOPMENT CLUSTER LTD.

5/617, Swimming pool Premises, Near Ved Bhavan, ICHALKARANJI-416115 DIST.KOLHAPUR (Maharashtra)
Phone: (0230) 2421009, Website: www.ichcluster.com Email : chairperson @ ichcluster.com

TENDER NOTICE

Sealed Percentage rate tenders are invited for the following works from reputed Experienced or Registered Contractors.

Sr. No.	Name of the Work	Estimated Cost In Rs. in lacs.	Earnest Money Deposited in Rs.	Period of Completion of work	Tender Form Cost In Rs.
1	Strengthening of road shoulder from Ch. Shivaji Statue to Kolhapur Naka.	1083074.00	10830.00	1 Months	1000.00
2	Strengthening of road shoulder from Ch. Shivaji Statue to Hatkanangale Naka.	2771805.00	27718.00	1 Months	2000.00
3	Concrete flooring for road Shoulder from Ch. Shivaji Statue to Telephone office	847977.00	8480.00	3 Months	1000.00
4	Nalla development near CETP site	937801.00	9378.00	3 Months	1000.00
5	Supply & Erection of 16 meter High Mast lighting at Chandani Chouk.	513377.00	5134.00	1 Months	1000.00
6	Water supply project for Shri Laxmi Co-op. Industrial Estate Ltd. Hatkangale. Supplying erecting & commissioning Pumping Machinery and Accessories for Satge 1st & 2nd.	1135732.00	11357.00	3 Months	1000.00

1. Blank Tender Forms, will be issued at cluster office between 11th April 2007 to 20th April 2007 on payment of tender form fee and fulfilling eligible criteria as per tender form
2. Sealed tenders will be accepted in cluster office on or before 21st April 2007 up to 2.00 P.M. Tender will be opened on the same day at 4.00 P.M. in the presence of tenderers.
If any change in the date on tender opening it will be informed.
3. Ichalkaranji textile development cluster reserves the rights to reject any or all tenders without assign any reasons.
4. This Tender Notice & Tender Documents are also available at our website www.ichcluster.com
5. Proof of ownership of modern drum mix plant and other modern machinery (as confirming to the Clause no. 504.3.4.) for B.T. Works shall be produced with application for blank tender form

(G.R.Akiwate.)
Managing Director.

(Sou. Kishori P. Awade.)
Chairperson

DETAILED TENDER NOTICE

NAME OF WORK : Concrete flooring for road shoulder from Ch. Shivaji statue to Telephone office

Sealed Percentage Rate Tender in B-1 form are invited from Reputed Experienced or registered contractors who are qualifying following “Essential Qualifying Criteria”. Detail of execution of work is mentioned in Tender Notice.

Tender documents can also be downloaded from Company’s website www.ichcluster.com and in such a case, the tenderer shall deposit the cost of tender documents along with submission of the tender, failing which his tender will not be opened. The cost of tender documents shall be deposited in the form of demand draft/pay order and enclosed in the envelope containing the Earnest Money Deposit. Tenderers are advised not to make any corrections, additions or alterations in the downloaded tender document. In case, any correction, additions or alterations in the downloaded standard documents are made, such tender shall not be considered.

Essential Qualifying Criteria

1. The Contractor should possess the experience of having successfully completed similar works during the last 3 years (ending last day of 31st March every year.) which should be any one of the following.
 - i) Three similar completed works each costing not less than amount equal to 30% of the estimated cost.
 - ii) Two similar completed works each costing not less than amount equal to 40% of the estimated cost.
 - iii) One similar completed works costing not less than amount equal to 65% of the estimated cost.
2. The financial turnover during the last three years should be at least 30% of the estimated cost.

Notes:- the financial turnover shall be judged from ITCC or Annual reports including Profit and Loss A/c.

3. The Contractor should have its net worth not less than 10% of the estimated cost of the tender. This will be judged from the audited balance sheet of the last financial year ending on a date not prior to 18 months from the due date of submission of the tender.
4. The contractor should submit performance certificate in reference to S. No.1 (Minimum 3 Nos., 2 nos., or 1 n. as the case may be) above from clients for having successfully completed similar works in the last three years.
5. There should not be any unsatisfactory performance report of the contractor from any source.

1. Name of Work: Concrete flooring for road shoulder from Ch. Shivaji statue to Telephone office

2. Cost of each blank tender form :- Rs.1000/-
(Non Refundable)

3. Estimated Cost of Works :- Rs.8.48 Lakhs

4. Earnest Money :- Rs.8480/-

5. Initial Security Deposit (2%+1% EMD) :- 2 % + 1 %
and Further Security Deposit,
to be deducted from bills. (5%) :- Rs. _____

6. Date and time upto which

Blank tender forms will be issued. :- 11th April.2007 to 20th April 2007

7.Date & time of receipt of tender. :- 21st April 2007, 2.00pm

8. Probable date and time of

opening of tender. :- 21st April 2007, 4.00pm

9. Validity Period :- 120 Days

The offer of the contractor shall remain valid for acceptance for a minimum period of 120 days from the date fixed for opening of Envelope No. 2 (Main Tender) 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 Acknowledgement due.

10. The tender notice shall form a part of the contract agreement.

11. The tenders are invited on Company design only.

12. The blank tender forms will be sold only to the eligible Contractors and above on production of original or attested copy of valid registration or renewal certificate at the time of applying for issue of blank tender forms otherwise blank tender forms will not be issued to them.

13. The tenderer if firm or company shall in their forwarding letter mention the names of all the partners of the firm or the company (as the case may be) and the name of the partner who holds the power of attorney if any, authorizing him to conduct transaction on behalf of the firm or company.

14. Right is reserved to revise or amend the contract documents fully or part thereof prior to the date notified or amended for the receipt of tender. Such deviations/amendments if any shall be communicated in the form of corrigendum or by a letter as may be considered suitable.

15. Right is reserved to or rejects any or all tenders without assigning any reason thereof.

16. Tenders that do not fulfill all or any conditions or are incomplete in any respect are liable to summary rejection.

2. Tender form, conditions of contract, specifications and contract drawings can be had on payment of Rs.1000/- cash/DD (Rs. One Thousand Only) per set from the office of the company on any working days during office hours (except Sunday & Holiday). Postage will be extra.

Further information regarding the work can be obtained from the above office. The Tender will be received in the company office on 16th Sept 2006 upto 2.00 pm and will be opened on the same day if possible, in the presence of such intending tenderers or his/ their authorized representatives who may be present at that time. Tenders sent by post shall be sent in good time by registered post and must reach by the above time and date. For late delivery or no delivery by postal authority, the company will not be responsible.

3. The offer shall be valid for 120 days from the date of opening of the Tender.

5. No alternative designs will be accepted for this work.

6. No suggestions/ conditions will be accepted for this work.

Contractor

Managing Director

APPENDIX - I

NAME OF WORK : CONCRETE FLOORING FOR ROAD SHOULDER FROM CH. SHIVAJI STATUE TO TELEPHONE OFFICE

- A] Estimated Cost : Rs. 8.48 Lacs
- B] Earnest Money : Rs. 8480/-
- C] Total Deposit Amount : To be paid 1 % inclusive of earnest money.
(2 % initially as Security Deposit and
5 % from running bills.)
- D] Defects liability Period : 24 months including two complete rainy
season
- E] Date of Commencement :. _____ 2006
- F] Period of completion of work : 1 months
- G] Compensation per day for non
Completion of the work within
The period of completion of work : Rs. _____ /- per day
- H] Value of the work for interim
Certificate. : Rs.8,00,000/-(of executed work)
[Excl. Material supplied by Owner]
Bills to be submitted Once in a month
During last week.
- I] Issue of final completion Certificate : Minimum 1 month after completion of all
the items of Building including issue of
virtual completion certificate.
- J] Period for recording measurements : 30 Days
- K] Payment against the material on site :75% of material value will be released
During the Running Bills
(At the descretion of Architect)

CONTRACTOR

TENDERER'S EXPERIENCE

Tenderer shall furnish here a list of similar jobs executed by him to whom a reference may be made by owner / Board in case he considers such a reference is necessary .

Sr. No. of work.	Name & Description	Value of work.	Period of Construction client And data.	Person (with addresses to whom reference may be made)
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Tenderer certifies that the above information is true and in case it is found not be true, at a later data the owner / Board shall have the right to terminate the contract.

Signature -----

Designation -----

Company -----

Seal of Company

Date -----

SCHEDULE OF DRAWINGS

The drawings are only for Tenderer's guidance. Actual work shall be done according to 'Approved for Execution' drawings only.

Sr.No.	Drawing No.	Title.
1.		Plan, Elevation section and General Drawing etc.

The above listed drawings must be returned with the tender documents at the time of submission of tender.

Note: All detailed construction drawings will be issued during construction stage.

SCHEDULE OF EQUIPMENT

The Tenderer shall indicate herein below the equipment, he has in possession and the equipment he proposes to bring to the site, in case the work is awarded to him.

Sr. No.	Type & Description of the equipment	Numbers of the Tenderer has in possession.	Numbers the Tenderer proposes To bring to site
1.	2.	3.	4.

Tenderer hereby confirms that the quantity and type of tools he will employ for construction will not be less than those listed above, and agree to bring more equipment , if so warranted in the opinion of the Engineer –in – charge.

Signature _____ -

Designation _____

Company _____

Date -----

Seal of Company.

DECLARATION OF THE CONTRACTORS

I /We hereby declare that I / We have made my self / ourselves thoroughly conversant with the sub-soil conditions, the local conditions regarding all materials (such as stone, murum sand etc.) and labour of which I / We have based my/ our rates for this work. The specifications, conditions bore results and lead of materials on this work have been carefully studied and understood by me/us before submitting this tender. I/we undertake to use only the best materials approved by the Architect / Engineer or his duly authorised assistant before starting the work and to abide by his decision.

Signature of Contractor (s)

OFFER LETTER

To,
The Managing Director,
Ichalkaranji Textile Development Cluster Ltd.
5/617, Swimming Pool Premises , Near Ved Bhavan,
Ichalkaranji

Sir,

1. I/We have read and examined the following documents relating to the constructions given in tender notice.
 - a) Notice inviting tender.
 - b) Directions to the tenders.
 - c) Additional Conditions
 - d) Special Conditions
 - e) General conditions of contract
 - f) Technical Specifications
 - g) Bill of quantities & Rates
 - h) General Drawings.
2. I/We hereby tender for execution of the works referred in the aforesaid documents. Upon the terms and conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings and other relevant details at _____ % above / below (in words) _____ % above / below the rates entered in the aforesaid bills of quantities.
3. According to your requirement for payment of earnest money amounting to Rs. 8480/-

I/We have made the payment at your office.

4. I/We hereby request you not to enter into contract with any other person/s for the execution of the works unit I notice of non-acceptance to the tender has first been communicated to me/us and in consideration of your agreeing to retrain from so doing I/We agree not to withdraw the offer constituted by this tender before the date of communication to me/us of such notice of non acceptance. Which date shall not be later than Ten days from the date of decision of the Owner.
5. I/We also agree to keep this tender open for acceptance for a period of 120 days from the date fixed for opening the same and not to make any modification in its items and conditions. Which are not acceptance to the Owner.

6. I/We agree that the Owner shall without pre justice to any other right or remedy be at liberty to forfeit the said earnest money absolutely if....
- a) I/We fail to keep the tender open as aforesaid.
 - b) I/We fail to execute the format contract agreement or make the contract deposit when called upon to do so.
 - c) I/We do not commence the work on or before the date specified by the Engineer in charge.
 - d) I/We hereby further agree to pay all the charges of whatsoever nature in connection with the preparation stamping and education of the said contract.

Address

Yours faithfully,

Name of Tenderer (1)

Residential (2)

Address of the

Partners constituting

The firm (3)

(4)

ADDITIONAL CONDITION

- 1) Only new centering plates/new marine plywood shall be used with M.S. spans and M.S. props for centering purpose of all R.C.C. and P.C.C. works.
- 2) Brand of material product recommended, suggested or instructed by the architect will be used without any hesitation.
- 3) Day to Day supervision shall be managed by experienced and qualified staff of the Industrial Estate & I.T.D.C. site Engineer.
- 4) Structural design shall be as specified in the latest B.I.S.No. 456 code of practice for plain and reinforced concrete as designed by the structural Engineer of the Architect.
- 5) Concrete used shall be of 1:1:5:3 proportion (with minimum strength of 20 N/sq.mm) machine mixed and placed by hoist/crane or any other method approved by the Architect / Engineer. Materials shall be weigh batched in case mix design is to be done.
- 6) Tor Steel / manufactured under the License from Tor Steel research foundation with Fe 415 grade and higher or TMT shall be used Mild Steel of grade Fe250 grade I shall be used wherever specified. Use TATA TMT / Sharda Ispat Hytech 415/500 grade.
- 7) All concrete and steel and allied tests should be tested in Laboratory of Walchand Engineering College, Sangli and report should be submitted to the Architect / Engineer . Test should be taken in presence of the site Engineer.
- 8) Tor Steel reinforcement should be tested from above institute and results should be supplied as stated above.
- 9) The foundation should reach upto hard strata.
- 10) It is compulsion on the Contractor to be present on site during Architect / Managing committees visits.
- 11) The enclosed estimate is only for information. The quantities are liable to decrease or increase to any extent during execution. Extra claim of rates will not be accepted for increase or decrease in quantity. The contractor shall carry out the extra work at tender rates only. Clause no. 38 and its sub- clauses (as mentioned in P.W.D.) shall not be applicable under any circumstances. Any item in full may be added or deleted in /from the work.
- 12) Any of the items specifications missing from this set, as well as working procedure should be followed as per the specification of the D.S.R. of PWD as well as the instruction of the Architects should be followed strictly.

- 13) Decision of the Architects connected with any of the items of building, Ambiguity of drawings & estimated sets, changes if desired during execution is to be strictly obeyed and executed by the agency/ contractor without demanding any extra claim including time duration .
- 14) The Contractor should prepare the bar chart/C.P.M, P.E.R.T. showing the details of the main items of the work to be completed within specific period and should be given to the competent authority / engineer for verification of its approval before commencement of the work.
- 15) No Escalation clause will be applicable for the project. Difference in only cement rate of D.S.R. and Market rate shall be payable as per the star rate calculation of PWD but will be at the discretion of the Architect. No Difference or addition in rate for other items of work / material for work will be given.
- 16) The time allowed for carrying all the work as entered in the tender shall be reckoned from the date of which the order to commence the work is given . The work shall through stipulated period of contract be proceeded with all due diligence & the Contractor shall pay as compensation an amount equal to 1% or as the competent authority / Engineer may decide as per clause No.2 of condition of contract of P.W.D.
The time allowed for any work for the completion is as below
 $\frac{1}{4}$ (25%) of the work in $\frac{1}{3}$ of the time (33%)
 $\frac{2}{5}$ (40%) of the work in $\frac{1}{2}$ of the time (50%)
 $\frac{3}{4}$ (75%) of the work in $\frac{3}{4}$ of the time (75%)
Full work should be completed in given 5 Calendar month.
- 17] During construction the necessary insurance should be carried out for the construction activities losses in case of accidents to building as well as human rights by the contractor.
- 18] All M.S.E.B deposit Govt. taxes of all sort etc. are to be borne by the contractor.
- 19] It may be possible that the work may be divided between 2 or more contractors i.e. separate contractors may be appointed for different Buildings, and the contractor agrees to take no objection to the same. The Architect and Managing Committee (Owner) reserves the right to accept and reject any tenders for the work. It will not be binding on the owners part to accept the lowest tender. The contractor agrees for the same.
- 20] The rates for extra items will be based on current D.S.R. with lead and lift as calculated by the Architect. Escalation will not be applicable to extra items.
- 21] Proper co-ordination shall be maintained with the other Contractors executing the Existing Compound Wall, underground electrical cables, water supply line, telephone, drainage lines etc. of all sorts, if damage during execution, the Contractor is liable for the compensation for the same including its installation.

CONTRACTOR

OWNER.

TENDERING PROCEDURE

1. Issue of Blank tender forms.:

Blank tender forms can be purchased from the office of The Managing Director, Ichalkaranji Textile Development Cluster Ltd., 5/617, Swimming Pool Premises, Near Ved Bhavan, Ichalkaranji.

2. The prospective tenderers are free to ask for any additional information or clarification either in writing or orally and reply to the same will be given by the Architect through the Managing Director I.T.D.C. in writing and this clarification referred to as common and applicable to all tenderers.

3. The tender submitted by tenderer shall be based on the clarification, Additional facility issued (if any) by the Department and this tender shall be non conditional. Conditional tenders will be summarily rejected.

4. All tenderers are cautioned that the tenders containing any deviation from the contractual terms and conditions, specifications or other requirements and conditional tenders will be rejected.

5. Manner of submission of tender and its accompaniments :

Tender to be submitted in two separate sealed envelopes.

Tenderer shall submit the tender and documents in two sealed envelopes as below :

Envelope No.1 (Documents) :

The first envelope clearly marked as Envelope No.1 shall contain the following document

(a) Demand Draft of Scheduled or nationalised Bank receipt for amount of earnest money.

b) An upto date Income Tax clearance certificate in original from Income Tax officer, of the Circle (or true copy there of duly attested by a Gazette officer) valid on the date fixed for receipt of tender, unless specifically exempted in this respect by the Government.

c) Details of the other works tendered for and in hand with the value of the work unfinished on the last date of submission of tender (in form No,1) The certificate from the Head of the offices under whom the works are in progress should be enclosed.

Signature of Contractor

No. of Correction.

Owner

d] A list of machinery and plants immediately available with the tenderer for use on this work and list of Machinery proposed to be utilised on this work, but not immediately available and the manner in which it is proposed to be procured (in form No.2)

e] Details of works of similar type and magnitude carried out by the contractor (in form No.3)

f] Details for technical personnel on the rolls of the tenderer (inform n.5)

(2) Envelope No.2 (TENDER)

The second Envelope clearly marked as Envelope No.2 shall contain only the main tender offer in the prescribed format of Vol-II supplied by the Owner including the common set of condition / stipulations issued by the department.

The tenderer should quote his original basic offer at the end of schedule 'B' of this agreement under the heading of 'Tender for works' of B-1 tender document to be submitted only in Envelope No.2 both in words and figures.

He should not quote this offer anywhere directly or indirectly in Envelope No.1 The contractor shall quote for the work as per details given in the main tender and also based on the detailed set of conditions issue / Additional stipulations made by the Department as informed to him by a letter from Architect. This tender shall be unconditional.

6) Submission of Tender :

The two sealed Envelopes No.1 and 2 shall be again put together in one common cover and sealed. This sealed cover shall be marked on the left hand top corner " Tender for the work of **Construction of Watchman Quarter & Compound Wall for RCC ESR at Ichalkaranji Industrial Estate Ltd., Shahapur Dist. Kolhapur**

The full name and address of the tenderer and the name of the authorised agent delivering the sealed cover containing the tender shall be written on the bottom left hand corner. If submitted by post, the sealed envelope marked as above , shall be enclosed in another cover properly addressed and shall be sent by Registered Post Acknowledgment due. The date and time for receipt of envelope containing tender shall strictly apply in all cases. The tenderers should ensure that their tender is received by the Owner before _____ Delays on account of any cause will not be entertained for the date of receipt of tender. Tender offered or received after the date and time is over will not be accepted or if inadvertently accepted, will not be opened and shall be returned to the tenderer unopened.

Signature of Contractor

No. of Correction.

Owner

OPENING OF TENDERS :

On the date or as conveyed to all tenderers following procedure will be adopted for opening of the tender.

Envelope No. 1.

First of all Envelope No.1. of the tender will be opened to verify its contents as per requirement. 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 tenderer's Envelope No.2 will not be considered for further action but the same will be recorded.

Envelope No.2. This envelope shall be opened immediately after opening of Envelope No.1 only if contents of Envelope No.1 are found to be acceptable to the Department, the tendered rates in Schedule B or percentage above / below the Estimated rates shall be read out.

Acceptance of Tender. :

1. The acceptance of tenderer may be communicated to the contractor telegraphically or otherwise either by the tender opening Authority or any Authority in the Department including Architect.
2. The successful tenderer will be required to produce to the satisfaction of the specified concerned authority, a valid and concurrent license issued in his favour under provisions of the Contract labour (Regulation and Abolition) Act 1970 before starting the work. On failure to do so the acceptance of the tender is liable to be withdrawn and Earnest Money forfeited.
3. The tenderer whose tender is accepted will have to give an undertaking in writing to the effect that he / they will pay the labours engaged on the work, the wages as per Minimum Wages Act, 1948 applied to the zone in which the work lies and act accordingly.
4. The Contractor shall comply with the provisions of the payment of Wages Act.1936, Minimum Wages Act.1948 Employees Liability Act, 1938. Workmen's Compensation Act,1961. The contract labour (Regulation and abolition) Act, 1979 and any modification thereof or any law relating there to any law relating there to, and rulers made there under firm time to time.
5. The contractor whose tender is accepted is required to note that no foreign exchange will be released by the Department.
6. The Contractor will have to sign the original copy of the tender papers and the drawings according to which the work is to be carried out. The contractor shall have to give a declaration to the effect that he has full studied the plans, specification, local conditions, and availability of Labour and materials and that he has quoted his rates with the consideration to all these factors.

Signature of Contractor

No. of Correction.

Owner

Security Deposit :

The successful tenderer shall have to pay ____% Security Deposit in cash or Demand Draft to complete the contract documents failing which his earnest money will be forfeited to the owner The balance ____% Security amount will be recovered from the R.A.Bills.

1. All compensation or other sums payable by the contractor under the terms of this contract or any other contract or any account may be deducted from his security deposit or from any sums which any be due to him or may become due to him by the Owner any account and in the event of the security being reduced by reason of any such above noted deductions the contractor shall within 10 days of receipt of notice of demand from the Engineer in charge make good the deficit.

2. There shall be no liability on the Department to pay any interest on the security deposited by or recovered from the contractor.

3.The security deposit shall be refunded after completion of defect liability period prescribed for this contract only after the certificate from the Architect in this behalf.

Signature of Contractor

No. of Correction.

Owner

SPECIAL CONDITIONS

1. These special conditions shall be read in connection with the General Conditions of contract given herein before , Where the two are at variance , the conditions herein below shall take precedence over those in General Conditions and shall thus govern.

2. DRAWINGS BY THE ARCHITECT / ENGINEER :

The Architect will work out all the necessary Drawings except those stated under there below, which have to be prepared by the respective contractor and shall be deemed to have been included in the Quotation.

The Architect / Engineer will give to the contractor free of charge two sets of all Drawings necessary for the construction , other prints can be obtained from a Architect / Engineer against paying actual costs.

In case, the contractor has any question with regards to these drawings or finds it necessary to have changes made therein, he should inform the Architect / Engineer well in time and upon his failure to do so , will be liable for all consequences arising thereof. The contractor is further there to inform the Architect / Engineer in writing well in time if any plans he may need have not been furnished to him yet.

The Contractor is bound to review all drawings as to their correctness by signing the contract , he assumes full responsibility for the project and its construction and is accordingly liable in all respects for performance thereof.

In case of any discrepancy between the type of working drawing on one hand and wording of the corresponding item and specifications thereof as per the contract, the latter will be deciding for the purpose of actual execution of items . However, the Architects/ Engineer's decision in this matter will be final.

3. DRAWINGS BY CONTRACTOR :

The Drawings to be prepared by the Contractor are as follows :

a). All Drawings for shuttering and Bar bending schedules and bending lists based on Reinforcement Drawing furnished by the Architect / Engineer. All drawings prepared by the contractor by shuttering and reinforcements bending as stated above, shall have to be got approved by Architect / Engineer before the execution of work.

b) All drawings which are or would be entirely necessary to explain the monthly accounts.

c) All steel fabrication drawings necessary for the execution of job.

d) In case, the contractor wishes to suggest any alternative , he has to provide the necessary drawings for the same. These drawings will be checked by the Architect / Engineer for approval. In case , the Architect / Engineer approves or rejects these drawings and alternative there to , the contractor shall not be entitled for any claim whatsoever.

e) All as built Drawings for services and installations.

4. Unless otherwise specifically mentioned in various tender items in Schedule 'B' or bill of quantities , the items shall be deemed to cover all lifts and leads required for execution of the work as per approved Drawings and no extra claims for additional lifts or leads shall be entertained . If no specific lead is mentioned in the Tender item, it shall be considered to cover a lead of 150 m.

5. The rates quoted in the Schedule 'B' shall be taken as inclusive of all cost of dewatering job required from beginning till completion of the work, unless there is separate Tender item of dewatering on B.H.P.hour basis. But in that case small dewatering which would be done manually will not be payable under the tender item on BHP Hr. basis , and such small dewatering is considered as included in the tender rate.

6. The words " Approved for construction" or " Approved as Noted" shall be deemed to convey the approval of Architect / Engineer to the execution of work as per these drawings.

7. The contractor shall provide at his cost a temporary office for the Architect / Engineer at site with covered area of about 25 sqm. with necessary furniture for use as director by the Architect / Engineer . The shed and furniture on completion of the work is however the property of the contractor and shall be removed by him at the close of the work.

8. The Contractor shall provide free of charge all labour and material required for lining out, surveying and measurements of works etc. He will similarly provide such aids as decided by the Architect as are considered necessary for the proper and systematic execution of the work.

9. Where for proper measurements of work, in the opinion of the Architect / Engineer, it is necessary to have a pillar set up levels taken, the same as recorded in the authorised file book by the Architect / Engineer or his representatives will be signed by the Contractor , who will be entitled to have a true copy of the same on demand . Any failure on the part of the Contractor to get such levels before starting the works will render him liable to accept the decision of the Architect / Engineer as to the basis of taking measurements.

Likewise the Contractor will not cover any work which will render its subsequent measurements difficult or impossible without first setting the same jointly measured by himself and the authorised representative of the Architect / Engineer.

10. The Contractor shall engage on the work at all times a qualified and experienced Engineer as his authorised Agent to ensure, that the quality of the work turned out shall be intended in the specifications. The authorised Agent shall sign in the work order book and take the decision on site and shall be responsible for carrying out the works.

11. During the entire construction period, the contractor has to maintain a triplicate book, into the book, observations and remarks pertaining to the construction will be entered by the Employer and / or Architect / Engineer. All notifications made directly by the employer and /or Architect / Engineer to the contractors address by all means of Registered Mails shall be deemed to be sufficient and legal.

12. To ensure that the Contractor submits and conforms to all the bonds and conditions and specifications of the contract, the contractor must submit to the employer and /or Architect / Engineer samples of material he intends to supply or use together with a written manifest of the places from which he will obtain these material. Furthermore he should present a manifest or their trade marks and all other information concerning them which Architect / Engineer may demand. These must be approved by Architect / Engineer in writing before bringing them to the site.

13. In addition to item 12 above, before beginning any part of the work the contractor has to supply a pattern for the kind of workmanship he intends to follow and when such a pattern is approved by Architect / Engineer all such subsequent work shall be as per this pattern and this must comply in every respect with the provisions in the specifications.

14. The Contractor will be required to submit periodic reports on the progress of the work as per a format to be approved by Architect / Engineer, in respect of work, labour material and such other aspects as demanded by Architect / Engineer.

15 Arrangement for Electric power and water required for construction should be done by the contractor on his own. The Industrial Estate may at its discretion (not binding) provide one point of Electric connection on site and the contractor has to ay the bill of meter reading as per mutually agreed between contractor and the Industrial Estate.

16. The Contractor will have to make his own arrangements for the telephone connection at the site.

17. The contractor has also to construct at his experience the necessary stores for keeping and preserving from damage the equipment or materials necessary for the work and also such other materials which in the opinion of Architect / Engineer need special storage facilities. Failure on the part or the contractor to do so, would be construed as a breach of conditions of contract and would render the contractor liable to consequences of such failures.

18. The contractor shall make his own arrangements for the authorisation work permits that may be necessary for his staff and workmen to work and as may be required by the local authorities.

19. The Employer may, if required , request the assistance of contractor's labour for purposes other than those forming part of this contract. The contractor will not unreasonably deny such assistance and Architect / Engineer's decision in this regard shall be binding on the contractor. The contractor will then be paid on the basis of rates quoted by him in the day work schedule included in the bill of quantities and all provisions made in sub-clause (3) of Clause 58 of the general conditions shall be applicable in this case as well.

20 The Contractor shall not sell or otherwise, dispose off or remove except for the purpose of this contract , sand , stones , clay , earth, murum, rock, or other substances of materials which may be obtained from any excavation made for the purpose this contract. All such materials and substances shall be Client's properly and shall be disposed off in the manner and place as may be directed by the Architect / Engineer in writing and then if directed by him use any of the .

Surplus excavated materials for the purposes of this work on a stack measurement without deducting for voids. The contractor shall have to pay the cost of such materials used by him on the work at the rate that would be fixed by the Architect / Engineer.

GENERAL CONDITIONS OF CONTRACT.

DEFINATIONS AND INTERPRETATIONS : In the contract as herein after defined the following words and expressions shall have the meanings hereby assigned to them except where the context otherwise requires :

A] 'Employer/ Client' means the company, firm or person as defined in the preface to these Documents i.e. Ichalkaranji Textile Development Cluster Ltd. Ichalkaranji.

B] 'Contractor' means person or persons, firm or company whose tender has been accepted by the Employer and includes the contractors personal representatives, successors and permitted Assigns also mean the concessionaire.

C] ' Architect/ Engineer' means the consultant to the project, namely. M/s. WAICHAL & WAICHAL Architect and Engineer, 1187/20, ' Rekhankan ' ,Rajarampuri 6th Lane-[East] Kolhapur -416008.

D] 'Architect/ Engineer's representatives' any resident Engineer or Assistant of the Engineer or any clerk of works appointed from time to time by the Employer or Architect / Engineer to perform the duties set forth in clause No. 2 , hereof , whose authority shall be notified in writing to the Contractor by the Architect/Engineer.

E] 'Works' means the work to be executed in accordance with the contractor.

F] 'Contract' means the general conditions, specification, Drawings, priced Bill of quantities. schedule of rates and prices (if any) tender and the contract agreement

G] 'Contract Price' means the sum named in the tender subject to such additions thereof or deductions there from as may be made under the provisions herein after contained.

H] 'Contract Plant' means all appliance or things of whatsoever nature required in or about the execution , completion or maintenance of the work s or temporary works (as herein after defined) but does include materials of other things intended for incorporation into or to form or forming part of the permanent works.

I] 'Temporary works' means all temporary works of every kind required in or about the execution or maintenance of the works.

J] 'Drawings' means the drawings referred to in the specifications and any modification of such drawing approved in writing by the Architect / Engineer and such other drawings as may from time to time furnished or approved in writing by the Architect / Engineer.

K] 'Site' means the lands and other places on, under in or through which the works are to be executed or carried out and any other lands or places provided by the employer for the purposes of the contract.

SINGULAR AND PLURAL :

Words importing the singular only also include the Plural and vice versa where the context required.

7. CUSTODY OF DRAWINGS:

- a) The Drawings shall remain in the sole custody of the Architect / Engineer but two copies thereof shall be furnished to the contractor free of cost. The Contractor shall provide and make at his own expenses shall return to the Architect / Engineer all drawings provided under the contract.

The Contractor shall give adequate Notice in writing to the Architect / Engineer of any further Drawings or specifications that may be required for execution of the works or otherwise under the contract.

- b) One copy of the Drawings furnished to the contractor as aforesaid shall be kept by the contractor on the site and the same shall at all reasonable times be available for inspection and use by the Architect / Engineer and his representative and by any other person authorised by the Architect / Engineer in writing.

8.FURTHER DRAWINGS AND INSTRUCTIONS:

The Architect / Engineer shall have full power and authority to supply to the contractor from time to time during the progress of the work such further Drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the works and the contractor shall carry out and be bound by the same.

11. INSPECTION OF SITE & NATURE OF GROUND:

- a) The Contractor shall satisfy himself before submitting his ' Tender as to the nature of the Ground and sub-soil the from and nature of the site and quantities and nature of the work and materials necessary for the completion of the works and the physical and climatic conditions there obtaining the supply of and conditions affecting labour facilities for obtaining the materials necessary for the completion of the works, the existing roads, railways or other means of communication with and access to the site, the accommodation , he may require and in General shall himself obtain all necessary information as to risks, contingencies and other circumstances which may influence or affects his tender.

- b) The employer does not guarantee or warrant in anyway that the material to be found in excavation will be similar in nature to that of any sample which may have been exhibited or indicated on the Drawings or in any other contract documents or to material obtained from borings or trial holes.

The contractor shall be deemed to have made local and independent enquiries as to and shall take the whole risks of the nature of the ground sub-soil or material to be excavated or penetrated and the contractor shall not be entitled to receive any extra or additional payments nor to recite from the contract nor to be relieved from any of his obligations, there under by reason of the nature of such ground sub-soil or material being other than that indicated on the Drawings or in any other contract documents or by any samples exhibited or deducted from the information provide by borings or that holes.

13. WORKS TO THE SATISFACTION OF ARCHITECT / ENGINEER.

So far it is legally or physically impossible the contractor shall execute complete and maintain the works in accordance with the contract to the satisfaction of the Architect / Engineer and City Engineer and shall comply with and adhere strictly to the Architect / Engineer's instructions and directions on any matter (whether mentioned in the contract or not) , The contractor shall take instructions and directions only from the Architect / Engineer, Engineer of .

14. PROGRAMME TO BE FURNISHED:

As soon as practicable after the acceptance of his tender, the contractor shall be required to submit to the Architect / Engineer for their approval a program showing the order of procedure and method in which he proposes to carry out the works shall whenever required by the Architect / Engineer furnish for their information particulars in writing of the Contractor's arrangements for the carrying out of the works and of the constructional plant and temporary works which the contractor intends to supply use or construct as the case may be .The submission to the and approval of such by the Architect / Engineer of such program or the furnishing of such particulars shall not relieve the contractor of any of his duties or responsibilities under the contract.

CONTRACTORS SUPERINTENDENCE

The contractor shall give or provide all necessary superintendence during the execution of the works and as long thereafter as Architect / Engineer may consider necessary. The contractor or a competent and authorised agent or representative approved of in writing by Architect / Engineer (which approval may at anytime be withdrawn) is to be constantly on the works and shall give his whole time to the superintendence of the same Such authorised agent or representative shall receive on behalf of the contractor directions and instruction from Architect / Engineer or (Subject to the limitations of clause 2 hereof) Architect / Engineers representative..

REMOVAL OF WORKMEN:

The contractor shall employ in and about the execution of the works only such persons as are careful skilled and experienced in their several trades and callings and Architect / Engineer shall be at liberty to object to and require the contractor to remove from the works who in the opinion of Architect / Engineer misconduct himself or is incompetent or negligent thereon in the proper performance of his duties or whose employment thereon is otherwise considered undesirable and such persons shall not be again employed upon the works without the permission of Architect / Engineer.

SETTING OUT

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 alignments of all parts of the works and for the provision of all necessary instruments appliances and labour in connection there with . If at any time during the progress of the works any error shall appear or arise in the position levels dimensions and alignments of all parts of the works

the contractor, on being required so to do by Architect / Engineer shall at his own expenses rectify such error is based on incorrect data supplied in writing by Architect / Engineer or his representative in which case the expenses of rectifying the same shall be borne by the employer. The checking if any setting out or of any line or level by Architect / Engineer or his representative shall not in any way relieve the contractor of his responsibility for the correctness there of and the contractor shall carefully protect and preserve all bench marks sight-rails pegs and other things used in setting out the works.

18 BORE HOLES & EXPLORATORY EXCAVATION:

If at any time during the execution of the works. Architect / Engineer shall require the contractor to make bore holes or to carry exploratory excavation such requirements shall be ordered in writing and shall be deemed to be addition ordered under the position of Clause 58 thereof unless a provisional sum in respect of such anticipated work shall have been included in the Bill of quantities.

19. WATCHING AND LIGHTING

The contractor shall in connection with the works provide and maintain at his own cost all lights guards, fencing and watching when and where necessary or required by Architect / Engineer or by any competent statutory or other authority for the protection of the works or for the safety and convenience of the public or others.

20. CARE OF WORKS.

a) From the commencement to the completion of the works the contractor shall take full responsibilities for the care thereof and of all temporary works and in case any damage loss or injury shall happen to the works or any part there of or to any temporary work from any cause whatsoever (save and except the expected risks as defined in Sub-Clause 2 of this clause) shall at his own cost repair and make good the same so that at completion, the works shall be in good order and condition and in conformity in every respect with the requirements of the contract and Architect / Engineer's instructions. In the event of any such damage loss or injury happening from any of the expected risks, the contractor shall if any to the extent required by Clause 73 hereof repair and make good the same as aforesaid at the cost of the Employer. The Contractor shall also be liable to any damage to the works occasioned by him in the course of any pertains carried out by him for the purpose of complying with his obligations under clauses 55 hereof.

b) EXPECTED RISKS

The ' Expected Risks ' are not (in so far as it is uninsurable) war, invasion act of foreign enemies hostilities (whether war be declared or not) civil war, rebellion, revolution, insurrection or military or usurped power or a cause solely due to use or occupation by the Employer of any portion of the works in respect of which a certificate of completion has been issued (all of which are herein collectively referred to as ' the expected risks ')

21) INSURANCE OF WORKS:

Without limiting his obligations and responsibilities under clause 20 hereof, the contractor shall insure in the joint names of the Employer and the contractor against all loss or damage from whatever cause arising (other than the expected risks) for which he is responsible under the terms of the contract and in such manner that the employer and contractor are covered during the period of maintenance for loss or damage arising from a occurring prior to the commencement of the period of maintenance and for any loss or damage occasional by the contractor in the course of any operations carried out by him for the purpose of complying with his obligations under clauses 55 hereof.

- a) The works and temporary works to the full value of such work executed from time to time .
- b) The materials constructional plant and other things brought on to the site by the contractor to full value of such materials constructional plant and other things.

Such insurance shall be effected with an insurer and in terms approved by the Employer (which approval shall not be unreasonably withheld) and the contractor shall whenever required produce to the Employer the policy or policies of insurance and the receipts for payment of the current premiums.

22. DAMAGES TO PERSONS AND PROPERTY :

The contractor shall take every practical precaution not to damage any adjoining or other properties (including the property of the employees) or any persons. He shall (expect if and so for as the specification provides otherwise) indemnify and keep indemnified the Employer against all claims for injuries or damages to any person or any such property whatsoever including surface or other damage to land being or crops being on the site suffered by tenants or occupiers) which may arise out of or in consequences of the construction and maintenance of the works and against all claims demands, proceedings, damages, costs, charges and expenses whatsoever in respect of or in relation thereto.

23. THIRD PARTY INSURANCE:

- a) Upon the execution of the contract, the contractor (but without limiting his obligations and responsibilities under clause No. 22 hereof) shall insure in the joint name of the contractor and employer against any damages, loss or injury which may occur to any adjoining or other property (including the property of the Employer) or to any person by or arising out to the execution of ht works or temporary works or in the carrying out to the contractor otherwise than due to the matters referred to in the provision to clause No. 22 hereof.

b) MINIMUM AMOUNT OF THIRD PARTY INSURANCE:

Such insurance shall be effected with an insurer and in terms approved by the Employer (which approval shall not be unreasonably withheld and for at least the amount stated in the amount stated in the tender and the contractor shall whenever required produce to the Employer the policy or policies of insurance and the receipts for payment of the current premium.

24. ACCIDENT OR INJURY TO WORKMEN:

A) The employer shall not be liable for or in respect or in consequence of any accident or injury to any workmen or other person in the employment of the contractor or any sub-contractors save and except an accident or injury resulting from any act or default of the Employer his agent or several and the contractor shall indemnify and keep indemnified the employer against all such damages and compensation (Save and except as aforesaid) and against all claims demands proceedings cost charges and expenses whatsoever in respect thereof or in relation thereof.

B) INSURANCE AGAINST ACCIDENT ETC. TO WORKMEN :

The contractor shall insure against such liability with an insurer approved by the employer (which approval shall not be unreasonably withheld) and shall continue such insurance during the whole of the time that any persons are employed by him on the works and shall when required produce to the employer, such policy of insurance and the receipt for payment of the current premium. Provided always that in respect of any person employed by any sub-contractor the contractor's obligations to ensure as aforesaid under this sub-clause shall be satisfied in the sub-contractor shall have insured against the liability in such manner that the employer is indemnified under the policy. But the contractor shall require such sub-contractor to produce to the employer when required such policy of insurance and the receipt for payment of the current premium.

27. FOSSILS:

All fossil coins articles or value or antiquity and structures and other remains or things of geological or archaeological in hereof discovered on the site shall as between the employer and the contractor be deemed to be the absolute property of the employer and the contractor shall take reasonable precautions to prevent his workmen or any other persons from removing or damaging any such articles or things and shall immediately upon discovery thereof and before removal, acceptant Architect / engineer of such delivery and carry out at the expenses of the Employer, Architect / Engineers orders as in the disposal of the same.

28. PAYMENT RIGHTS AND ROYALTIES:

The contractor shall have save harmless and indemnify the employer from and against all claims and proceeding for or an account of infringement of any patent right design trademark or name of other protected rights in respect of any constructional plant machine work or material used for or in connection with the works or temporary works or any of them and from and against all claims, demands, proceedings, damages, cost, charges and expenses whatsoever in respect thereof in relation thereof, except where otherwise specified the contractor shall pay all tonnage and other royalties, rent and other payments or compensation (if any) for getting stone and sand, gravel clay or other materials required for the works or temporary works or any of them.

29. INTERFERENCE WITH TRAFFIC AND ADJOINING PROPERTIES:

All operations necessary for the execution of the works and for the construction of any temporary works shall as far as compliance with the requirements of the contract permits for carried on so as not to intervene unnecessarily or improperly with the public convenience or

the access to use and occupation of public and private roads and footpaths or to or of properties whether in the possession of the employer or any other persons and the contractor shall save harmless and indemnify the employer in respect of all claims ,demands, proceedings ,damages cost, charges and expenses whatsoever arising out of or in relation to any such matters.

31. FACILITIES FOR OTHER CONTRACTORS :

The contractor shall in accordance with the requirements of the Architect /Engineer afford all reasonable facilities for any other contractors employed by the Employer and their workmen and for the workmen of the employer and of any other property authorised authorities or statutory bodies who may be employed in the execution on or near the site of any work not included in the contract or of any contract which the employer may enter into in connection with or ancillary to the works.

33. CLEARANCE OF SITE ON COMPLETION :

On the completion of the works , the contractor shall clear away and remove from the site all constructional plant, surplus materials , rubbish and temporary works of every kind and leave the whole of the site and works clean and in workmen like condition to the satisfaction of the Architect / Engineer.

36. SALES TAX:

The contractor shall pay Sales Tax and other special taxes which may legally be demanded by the Government and shall perform such duties in regard thereto as are imposed on him by the provisions and requirements of the regulations of orders of other legislation affecting such taxation including work contract tax.

37. ELECTRICITY AND TELEPHONES :

The contractor shall pay to the employer all charges at the rent rates for Electricity (if any) supplied for fabrication work by the employer to the contractor , the contractor shall also pay the usual charges for the telephone calls. Refer point 15 and 16 of Additional conditions.

38. INCOME TAX AND OTHER TAXES :

The contractor and his staff will also be fully responsible and will be liable to pay Income Tax and Super Tax and all other taxes in respect of their salaries and other emoluments and incomes are chargeable with under the laws for the time being in force and the contractor shall perform such duties in regards to the deductions thereof as may be lawfully imposed on him by the Government.

39. LABOURS :

- a) The contractor shall make his own arrangement for the engagement of all labours in respect of the engagement . Employment , paying , feeding , housing and working conditions of labour and of all other matters connected therewith. The Contractor shall at all times during the continuance of the contract conformed in all respect with and carry out all obligations imposed on him by the provisions and requirements of any law and of any Regulations or orders of any government (Central / Provisional or Local) or any

authority which may be applicable including any such a law, regulations or order passed or made or coming into force after the date of the contractors tender. In particular but without prejudice to the generally of the foregoing provisions the contractor shall conform with and do or refrain from doing any thing. He may be required to do or refrain from doing by any legislation or Ordinances so far, as applicable relating to factories or relating to industrial disputes and any regulations or orders there under.

- b) The contractor shall so far , as is reasonable practicable having regard to local conditions provide on the site to the approval of the Architect / Engineer and adequate supply of drinking water for use of his staff and work people.
- c) The contractor shall not at any time give, sale or barter any Alcoholic liquor or drugs or suffer any such a sale gift or barter to be made by any sub-contractor employs or Agent of the contractor not import or permit or suffer the importation of any Alcoholic liquor or drugs otherwise than instruct conformity with such laws. Rules and orders as may from time to time be made by Government .
- d) The Contractor shall not at any time import or sale , give barter or otherwise dispose of any arms or ammunition of any description to any person or persons whatsoever or suffer any of his sub-contractors. Agents, or employees to make any such a sale. Gift Barter or other dispositions.
- e) The Contractor his agent and employees shall in all there dealing with labour employed on or in connection with the works or any traffic connection therewith have due regard to all religious festivals and other customs.
- f) In the events of illness of an epidemic nature breaking out the contractor shall carry out and comply with all orders and regulations that may be issued by the Central Government or by the competent provincial or local government or other authorised or by the employer concerning the epidemic.
- g) The contractor shall within twelve hour of the occurrence of any accidental or about the site or in connection with the execution of the works report such accidents to the Architect / Engineer the contractor shall also report such accidents to the competent authority whenever such a required by law.
- h) The contractor shall at all lines take all reasonable precautions to prevent any law unlawful riotous or disorderly conduct by or amongst his employees an for the preservation of peace and protection of persons and property in the neighborhood of the works against the same but the contractor shall not be entitled to institute his own police force nor shall be interfere with the Government Police, who shall have free and undisputed access at all times to any part of the works in the execution of their duties.
- i) The contractor shall observe such hours of labour as may be prescribed by law or by any applicable order of the Central Govt. or of any competent provincial or local Government , or any applicable decision of award of any industrial . Tribunal or court or if no hours of labour be so prescribed then such hours as the employer shall approve in writing.
- j) The contractor shall be responsible for the observances of the provisions of this Clause by sub-contractor employs by him, in the execution of the contract.

41. RETURNS OF LABOUR ETC.

The contractors shall if required by the Architect / Engineer deliver to their office a return in such form and at such intervals that the Architect may prescribe in showing in details the numbers of the several classes of Labour from time to time employed by the contractor on the site and such information respecting constructional plant that the Architect / Engineer may require.

42 WORKS MATERIALS AND PLANT :

a) All materials and workmanship shall be of the respective kinds described in the contract and in accordance with the Architect / Engineers instruction and shall be subjected from time to time to such tests that Architect / Engineer may direct at the place of manufacture or fabrication or on site or at all or any of such places. The contractor shall provide such assistance, instruments , machines , labour and materials as are normally required for examining measuring and testing any work and the quality , weight or quantity of any material used and shall supply samples of materials before incorporation in the works for testing as may be selected and required by the Architect / Engineer.

c) All samples shall be supplied by the contractor at his own cost as directed by the Architect / Engineer.

c) The Cost of making any test shall be borne by the contractor ,if such test is clearly intended by or provided for in the specification or Bill of quantities and (in the cases only of a test under load or on a test to ascertain whether the design of any finished or partially finished work is appropriate for the purpose which it was intended to fulfil is particularly in the specifications or bill of quantities insufficient detail to enable the contractor to price or allow for the same in his Tender.

d) If any test is ordered by the Architect which is either :

1 . Not intended by or provided for or

1. (in the cases above mentioned) is not so particular.

2. Or through so intended or provided for is ordered by the Architect / Engineer to be carried out by an independent person at any Places other than site or the place of manufacture or fabrication of the materials stated then the cost of such tests shall be borne by the contractor , if the test shows the workmanship or materials not to be in accordance with the provisions of the contract or the Architect / Engineers instructions but otherwise by the employer.

43. ACCESS TO SITE :

The employer and the Architect / Engineer and any person authorised by them shall at all times have access to the work and to the site and to all workshops and places where work is being prepared or where manufactured articles and machinery are being obtained for the works and the contractor shall afford every facility for and every assistance in or in obtaining the right to such access.

44.a) EXAMINATION OF WORK BEFORE COVERING UP :

No work shall be covered up or put out view without approval of the Architect / Engineer and the contractor shall afford full opportunity for the Architect / Engineer to examine and measure any work which is about to be covered up or put out of view and to examine foundations before permanent work is places thereon. The contractor shall give due notice to the Architect / Engineer whenever any such a work of foundations is or are ready or about to be ready for examination and the Architect/ Engineer shall without unreasonable delay unless if considered if unnecessary and advice the contractor accordingly attend for the purpose of examine and measuring such a work or of examine such foundations.

b. The Contractor shall uncover any part or parts of he works or make openings in or through the same as the Architect /Engineer may from time to time direct and shall reinstate and make good such part of parts to the satisfaction of the Architect / Engineer if any, such a part a parts have been covered or put out of view after compliance with the requirements of the sub- clause (a) of this clause and are found to be executed in accordance with the contract the expenses of uncovering , making , openings in or through , reinstating and making good the same shall be borne by the Employer but in any other case , or such a expenses shall be borne by the contractor and shall be recoverable from him by the Employer or may be deducted by employer from any amount due or which may become due to the contractor.

45.REMOVAL OF IMPROPER WORK AND MATERIALS :

1 a) Architect / Engineer shall during the progress of the works have power to order in writing them time to time.

b) The removal from the site within such time to times as may be specified in the order of any materials which in the opinion or Architect / Engineer are in accordance with the contract.

c) The substitute of proper and suitable materials and ,

d) The removal and proper re-excavation (not with standing any previous test thereof or interim payment therefore) of any work which in respect of materials or workmanship is not , in the opinion of Architect / Engineer , in accordance with the contract.

li) In the case of default in the part of the contractor in carrying out such order the Employer shall be entitled to employ and pay other persons to carry out the same and all expenses consequent thereof or incidental hereto , shall be borne by the contractor and shall be recoverable from him by the Employer or may be deducted by the Employer from any amount during or which may become due to the contractor.

46. SUSPENSION OF WORK.

The contractor shall on the written order of Architect / Engineer suspend the progress of the work or any part there of for such time or times and in such manner (that Architect / Engineer) may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of Architect /Engineer . The extra cost (if any) incurred by the contractor in giving effect to Architect's / Engineer 's instructions under this clause shall be borne and paid by the Employer unless such suspension is :

i) Otherwise provided for in the contract , or :

ii) Necessary for the proper execution of the work or by reason of whether conditions or by some default on the part of the contractor , or

- iii) Necessary for the safety of the works or any part thereof. Provided that the contractor shall not be entitled to recover any such extra cost unless he gives notice in writing of his intention to claim to Architect / Engineer within seven days of Architect / Engineer's order. Architect / Engineer shall settle and determine the extra payment to be made to the contractor in respect of such claim the Architect / Engineer shall consider fair and reasonable.
- iv) If the progress of the works or any part thereof is suspended on the written order of Architect / Engineer for more than three months the contractor may serve a written notice on Architect / Engineer requiring permission within 28 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and If such permission is not granted within that time, the contractor by a further written notice so served may (but is not bound to) select to treat the suspension where it affects part only often works as an omission of such part under clause 57 hereof or where affects the whole works as an abandonment of the contract by the Employer.

53 LIQUIDATED DAMAGES :

If the contractor shall fail to complete the works within the time _____ or extended time then the contractor shall pay to the Employer the sum equal to 12% of contract price per week beyond the schedule completion of contract subject to ceiling 5% (five percent) of the contract price, by way of Liquidated Damages for such default and not as a penalty for every week of part of week which shall elapse between the time prescribed above or extended time as the case may be and the date of completion of the work. The Employer may without prejudice to any other method of recovery deduct the amount of such damages from any amount in his hands due or which may become due to the contractor. The payment or deduction of such damages shall nor relieve the contractor from his obligations to complete the works or from any other of his obligations and liabilities under the contract.

If before the completion of the works any part of the works has been certified by Architect / Engineer as completed pursuant to clause 54 here of and occupied or used by the Employer, the liquidated damages for delay shall for any period of delay after such certification be reduced in the proportion which the value of the part so certified bears to the value of the whole of the works.

54. CERTIFICATE OF COMPLETION OF WORKS :

As soon as in the opinion of Architect / Engineer the works shall have been substantially completed and shall have satisfactorily passed and final test that may be prescribed by the contract. Architect / Engineer shall on receiving a written undertaking by the contractor to finish any outstanding work during the period of maintenance of the works shall commence from the date of such certificate provided that Architect / Engineer may give such a certificate with respect to any parts of the works before the completion of the whole or the works and shall upon written application of the contractor give such certificate with respect to any parts of the works which has been both completed to the satisfaction of Architect / Engineer and occupied or used by the Employer and when any such certificate is given in respect of a part of the works such part shall be considered as completed and the period of maintenance of such part shall commence from the date of such certificate. Provided always that a certificate of completion of any ground of surface requiring, reinstatement unless such certificate shall expressly so state.

61. QUANTITIES:

The quantities set out in the bill of quantities are the estimated quantities of the work but they are not to be taken as the actual and correct quantities of the work to be executed by the contractor in fulfillment of his obligations under the contract. Quantities are likely to increase or decrease to any extent during execution. It will be binding on the contractor to execute the work at tender rates only. Claim for extra rates for excess / less quantity will not be entertained. Clause No 38 of PWD will not be applicable.

73. SETTLEMENT OF DISPUTES:

All disputes and differences arising out of or in connection with the contract whether during the progress of the work or after completion, shall be referred to and settled by arbitration by two Arbitrators, one to be nominated by the contractor and one to be nominated by the Employer, in the event of the arbitrators disagreeing, it shall be referred to an umpire to be nominated by the two arbitrators before proceeding with the arbitration. The decision of the umpire shall, however, be final and binding on both the parties, for the purpose of this clause, the provisions of the Indian Arbitration Act 1950 with relevant amendments shall be applicable.

74. CLEANLINESS OF THE SITE.

The contractor to make and maintain the work together with the ground at his disposal for and purpose in a tidy way free from the unnecessary deposit or things harmful for health. He has to deliver and part of work after having finished it in a clean and complete state and fit for use and he has to set in order the site of the work and free in from the deposit of all materials, dirt's and all sorts of obstacles.

He has to keep the site in a perfect state and take all the necessary precautions to protect the site trees and plantations surrounding the site and should not remove any thing of except only after a written consent of the Employer. In case the contractor does not fulfil all which has been stated above, not even after receiving the written instructions, the Employer has the right three days after sending the written instructions to perform it at the contractor's risk and cost.

Employer will be obliged the contractor, to collect all nail parts of remove shuttering and rubbish which might cause accidents.

75. SANITARY REQUIREMENTS :

The contractor has to fulfil all sanitary requirements demanded by the authorities and by the employer. He has to compact his Agents and labours follow them and he will be responsible for keeping order on the building site.

The contractor should keep a register containing the names of labourers, the address of their permanent Residence which will be submitted for inspection of the employer The contractor has to inform the nearest District . Doctors in case if illness or accidents to any labour. In case of illness of a worker the contractor will send him home and report this fact to the Employer.

Clause 42(a) The tendered rates shall be inclusive of all taxes, cesses, and royalties. The amount of royalty shall be deducted from bills to deposit in the treasury of Government.

3. Materials:

Aggregates: -The aggregates for providing B.B.M surface shall comply with specification Nos. Rd-41 for 40 mm 60mm size metal and shall normally comply with the following regarding size and quantity of aggregates and grade and quantities of bitumen.

Note : Hand broken metal is preferred. However upto 30% of total quantity of 40 mm size metal to 60 mm crusher broken metal can be used.

4. Preparing the base: Any pothole in the existing bituminous road surface and broken edges shall be patched well in advance and the surface shall be brought to correct level and chamber with additional surface shall be swept clean of all the dirt, mud cakes, animal droppings other loose foreign material.

If so required by the engineer the contractor shall keep the side width and near by diversion watered to prevent dust from blowing over the surface to be bituminised.

Existing water bound macadam surface shall be picked for and surface loosened for a depth of 7.5 cm and picked surface shall be brought approximately to the correct chamber and section. Edge line shall be correctly marked by dog belling the surface to form a continuous vee notch.

There shall always be specified length of prepared surface ahead of the bituminous surfacing operations as directed by the Engineer to keep these operations continue.

7. Spreading and compaction:

7.1 Spreading of 40 mm metal: - 40 mm size metal shall be spread evenly at the specified rate of 9 cubic meter/6 cubic meter per 100 Sq meter of area so as to form a layer even the width of road with correct camber / super elevation as required. Any foreign matter, organic matter, dust, grass etc. shall be removed immediately. The sections shall be checked with camber board and straight edge batten etc, any regulations shall be made good by adding aggregates in case of depressions and moving aggregates from high spots.

7.1 Compaction of 40 mm size metal: The surface of 40 mm metal layer after bringing it to necessary grades and sections that shall be rolled with the use of 8 to 10 tones power roller. Rolling shall commence from the edges and progress towards center longitudinally except on super elevation portion it shall progress from the lower to upper edge parallel to the center line of pavement when the roller has passed over the whole area any high spots of depressions which become apparent shall be corrected by removing or adding aggregates. The rolling shall then be continued till the entire surface has been rolled to designed compaction such that there is no crushing of aggregates and all roller marks have been eliminated. Each pass of roller shall uniformly over lap not less than one third of the track made in the preceding pass.

8. Application of bitumen: Bitumen of I.S grade S35 or S65 supplied for the work shall be heated to temperature of 1770C to 1910C (350 F to 375 F) in a bitumen boiled and temperature shall be maintained at the time of actual application. The hot bitumen shall be applied through a pressure sprayer on the road surface uniformly at the rate of 200kg/100 Sqmt. The road surface shall be divide into suitable rectangles marked by chalk as to ensure correct rate of application of the bitumen.

9. Key Aggregates: On completion of bitumen application 12 mm size key aggregate shall be spread immediately at a uniform rate of 1.8 cubic meter /1.2 cu meter per 100 sq meter area when entire surface is in hot condition. Brooms shall be used to ensure even distribution of key aggregate.

9 Final Compaction: Immediately after spraying of bitumen and spreading of key aggregates, the surface shall be rolled with a power roller to obtain full compaction and

to force the bindage of key aggregates into the interstices of the course aggregate. The rolling shall continue till the asphalt surface hardness and key aggregates stop moving under power roller.

- 10 The surface finish shall confirm to requirements of clause 902 of specification for Road and Bridges by Ministry of Surface transport (copy enclosed) Quality Control test and their frequencies shall be as per table below:

Sr.No.	Test	Frequency
1	Quality of binder	Two samples per lot to be subjected to all of some best as directed by the Engineer.
2	Aggregate impact	One test per 200 cubic meter of aggregate.
3	Flakiness index and Elongation Index	One test per 200 cubic meter of aggregate.
4	Stripping value	Initially one set of three representative specimens for each source of supply subsequently when warranted by changes in the quality of aggregate.
5	Water absorption of aggregates	Initially one set of three representative specimens for each source of supply subsequently when warranted by changes in the quality of aggregate.
6	Aggregate grading	One test per 100 cubic meter of aggregate.
7	Temperature of binder	At regular cause intervals
8	Rate of spread of	One test per 500 Sq meter of area.

12 Item to include:

1. Diversions unless separately provided in the tender.
2. Preparing the road surface.
3. Applying tack coat on existing B.I on picking the existing.
4. W.B.M surface.
5. Supplying, heating and spreading bitumen.
6. Supplying, spreading and compaction of 12 mm size chips.
7. All labour, materials, including bitumen and aggregates use of tools, plants and equipment for completing the item satisfactorily.

13. Mode of Measurement: The contract rates shall be for 100sq mt. The measurement shall be for the width of the roads executed, limiting it to the specified or as ordered by the Engineer and the length measured along the centre line.

The measurement of dimensions shall be recorded correct upto two places of decimals of a meter and the areas worked out correct upto one piece of decimal of a Sq. mt.

14. Measurement of payment: The work shall be measured as finished work in square meter of specified thickness. The mix brought to decide of work should be weighed at approved weight bridge and weighment slips of each tipper should be handed over to Engineer-in-charge daily.

TECHNICAL SPECIFICATIONS

T.1 GENERAL :

T.1.1. Scope of Work :

T.1.1.1. The work contemplated under this contract includes -----

For the aforesaid project, all as detailed in the Bill of quantities, specifications and drawings.

T.1.1.2. Such other works which are not included in the aforesaid bill of quantities is generally intended to be executed through a separately Agency. Not with standing the above clients reserve the right to order additional work under the same contract. The Client also reserves the right to order to omit any item of work included in the aforesaid bill of quantities and award the same to any other contractor or not perform it at all, at their discretion and the contractors shall not have any claim on the same.

T.1.1.3. The contractor for the work shall be required to work in co-ordination with other civil Engineering, Sanitary , Electrical and other contractors and give them all reasonable , assistance and help for the execution of the work in an efficient manner all as directed. The words ‘ approved ’as directed shall be deemed to convey approval on the directions or the Architect / Engineer.

T.1.2. Indian and British standard Specifications:

The particular specification for the work is use detailed herein after. These specifications shall be read in conjunction with the relevant Indian standard specifications and where not available with the relevant British / American standards and obtainable local practice as detailed in the various regional hand- books of praxes and the work shall be executed accordingly. Where the specifications in any of the standards or at variance with the specifications in any of the standards or at variance with the specifications obtained the herein, and specifications herein shall govern.

T.1.3. Quality of Materials and General standards of Works:

The contractor under this contract commits himself to use first class materials and assumes full responsibility for the quality of all materials incorporated or brought for incorporation in the work. The work shall be executed in accordance with best Engineering practice and as per directions of the Architect / Engineer

T.1.4. Water & Power :

Arrangement for water & power supply should be managed by the contractor at this own cost.

T.1.5. Scaffolding :

All scaffolding and ladders required for the proper execution of the work shall be provided by the contractor.

T.1.7 Tools and Plants :

The tenderer along with his tender, furnish a list of tools, plants and machinery which is intends to use on the works and Appendix –1 of the bill of quantities The list should indicate the exact type of machine , its capacity year of manufacture, kind and capacity of propelling force, spare parts readily available and all other pertinent information. The contractor is obliged to use all the machinery mentioned in his lists of the Architect / Engineer considered if necessary.

T.1.8 Surveying & Stocking :

It is the responsibility of the contractor to bring to site all surveying instruments necessary for the marking out, fixation of labours, etc. and conduct these survey operations himself with almost accuracy. The contractor shall put up entire , bench marks, etc. as necessary for the works. The Architect / Engineer will present when this work is being carried out and will inspect all those operations with the contractor/s assistance.

T.1.9 Access to site, Approach Roads and Roads within the premises.:

The contractors shall at his own cost provide all approach roads required in connection with the access to site for transport of materials and such other user. He shall acquaint himself thoroughly regarding conditions and suitability of public Roads leading upto the premises and will provide vehicles for transportation of materials which made the requirements of these Road conditions. It shall also be the responsibility of the contractor to maintain at his own cost these roads till the construction is completed.

T.1.10 SAMPLES :

The samples of all materials to be incorporated in the work shall be furnished to the Architect and got approved prior to built procurement or incorporation in the work. The samples shall be kept with the Architect / Engineer till the completion of the work . Materials not confirming to the samples are liable to be rejected and no claim what so ever in this regard shall be entertained.

T.2.1 EXCAVATION :

Excavation for trenches over areas and for pits etc. shall be done to writing lines and levels as shown in drawing or to such lesser or greater width lines and levels profile etc. watered and thoroughly rammed should any excavation be taken below the specified levels, the contractors shall at the own cost fill up such excavation with cement concrete M-100 to required levels. Filling in such excavation with the excavated materials unless specifically approved is prohibited. Precautions shall be taken by the contractor during excavation that electricity lines and water lines shall not be damaged. If damaged, the Compensation is to be borne by the contractor.

T.2.2 De-watering :

All water which may get accumulated in the excavations during the progress of work, from whatever cause or source , shall be bailed or pumped out or necessary . The rates for excavation shall be deemed to include for the same.

T.2.3 Timbering to Excavation (Shoring) :

Where the soil of soft and sides of excavation needs supporting suitability , designed planking and strutting shall be provided. The rules for excavation shall be deemed to include for all planking and strutting as necessary.

T.2.4 Refilling around foundations:

Re filling around foundation shall be done with approved materials. Refilling shall be done in layers not exceeding 30 Cms. Thick watered adequately and consolidated. The finished surface or filling shall be slightly proud as directly. The rates for excavation foundations shall be deemed to include for this.

T.2.5 Blasting :

Where blasting has to be resorted to for rock cutting, it shall be the responsibility of the contractor to arrange for the following at his entire risk, cost and responsibility.

- a) Permission from all the connected public authorised such as Municipal Corporation , inspector of expenses, Police , Highway authorised etc. shall be obtained.
- b) Fees, royalties and any other levels attended on such a blasting work shall be entirely borne by the contractor.
- c) All precautionary measures such as Notices to the adjoining property and other Agencies working in and around the plot, signaling and water etc. shall strictly adhere to according to the various regulation in force.
- d) All risk insurance in respect of the blasting hazards to men and materials within and in the vicinity of the plot. This insurance shall be apart from the contractors. All – risks insurance policy stipulated under conditions unless the contractor incorporates blasting hazards and its coverage in the said general policy.
- e) Storage of blasting materials shall be strictly as per explosive regulation . The tender must acquaint himself with the site conditions, in regard to blasting , nature of rock likely to met with timing and other restriction in regards to blasting etc. No claims what so ever in this regards shall be entertained Regulations regarding signals / siren etc. should be strictly adhered to.

T.2.6. Disposal of surplus Excavated Materials :

All materials considered surplus shall be removed to destinations and disposed off as directed. The disposal of the material can be in any of the following ways as directed by Architect / Engineer.

- a) Filling in low laying areas.
- b) Filling in at places of filling such as under floors, in roads etc.
- c) Stacking of material in predesignated stocking yard.
- d) Removal of material outside the plot for disposal at the description of the contractors.

T.2.7 Fillings:

Filling under floors or other places indicated shall be done with approved material obtained from excavation or approved materials brought from outside by the contractor. The material

should generally to be quality soft or hard murum or other approved. Filling shall be done in layers not exceeding 30 cm. Thick and each layer shall be watered adequately and consolidated properly by rollers or pneumatic rammers 8 to 10 Tonnes wherever conditions permit, it is not possible the consolidated shall be done by hand rollers and heavy pneumatic / hand rammers of 5 Tonnes capacity . The surface of the filling shall be finished to lines and levels as required . The filling shall be compacted in such a manner as to guarantee full stability.

T.2.9 Rubble Soling :

Rubble for soling shall be locally available stone or other approved variety , it shall be hard, durable and free from defects such as fissures etc. After excavation / filling has been performed to the required levels, rubble shall be hand set as closely as possible and packed well. Stones shall be laid to have been their largest area resting on the sub-grade. Rubble packing shall be in one layer of 20 cm thk.. After the stones are packed in position the interstices between them shall be carefully filled with the stone chips of appropriate sizes. These shall be hammered to obtain a finished and hard and compact and level surplus . More speeding loose spalls or stone chips are prohibited.

The surface shall then be examined for any protrusions and if found, the same shall be knocked off to obtain as even a surface as possible.

Under no circumstances , filling in voice with murum , sand or such other materials will be permitted. The soling so laid shall be completed with hand / power roller of 5 Tonnes capacity .If shall be dry rubble soling only PVC quoted water proof building paper required to be ensured that no tearing or puncturing of the paper occurs on account of indiscriminate use of the area by laboures. In unavoidable cases, these shall be covered with an additional layers of approved water proof paper of appropriate size (To cover the punctured area with suitable margins) before concreting is started.

T.2.9.1 Metal Packing :

Where metal packing is to be provided it shall confirm to the following specifications.

75 to 40 mm graded hard stone metal (75 to 50 mm being hand broken and similar aggregates being obtained from crushers) laid in two layers of 15mm thk each and compacted separately wit h8-10 Tonnes power roller to a thickness of 10mm each, scarifying the top surface with wire brush and brooms, to remove all dusty particulars and foreign matters and then blinding the same will stone dust or any such blinding material approved by the Architect. The final surface shall again be compacted with a power Roller 6-10 Tonnes capacity.

T.3 2 Cement :

Cement for the work shall be ordinary Portland. Cement confirming to the latest Indian Standards IS: 260 and confirming to the latest Indian Standards IS : 269 and of the best normal setting quality unless a quick setting quality is expressly instructed in the specifications or otherwise during the course of the work Architect /Engineer . The contractor shall always purchase Portland cement as fresh as possible after manufacture and where there is reason to believe the cement has been long stored, Architect /Engineer may demand a laboratory Test Certificate regarding the Character of cement and the contractor shall furnish the same at no extra cost. Architect

/Engineer shall reject any cement which in his opinion does not meet the required standards .

All bags and containers in this cement is packed shall be stored in a dry, weather-tight, properly ventilated structure with adequate provisions for prevention and absorption of moisture. The contractor shall at all times maintain for the inspection of Architect /Engineer a log book indicating the receipt of cement, brand and agent from whom obtained and the age of the cement. Cement which has caked or perished by being wet or otherwise shall on no account be used on the work.

Cement shall be consumed on the works in the same sequence as that of their receipt at site. Cement reclaimed from clining of Bags or from spillage from containers or otherwise shall on no account be used.

T.3.3 Sands :

Sand (fine aggregate) shall generally conform to latest Indian Standrds (151:383) Sand shall be natural sand, crushed gravel sand or crushed stone sand at the discretion of the contractor. Use of sea sand is prohibited. It shall be composed of hard siliceous material and shall be clean and f sharp angular grit type. Sand shall be properly graded minimizing all voids. Allowances for bulking of sand shall be made.

T.3.4 Coarse Aggregate :

Coarse aggregate shall be approved hard aggregate generally conforming to latest Indian Standards.

T.3.5 Aggregate, Gradation, Storage etc. :

Aggregate shall be stock piled properly and separately on the basis of gradation indicated herein below:

Fine	0 to 3 mm (1/8" and down)
Medium	3 to 7 mm (1/8" to 5/16")
Coarse	7 to 30 mm (5/16" to 1.14")

Aggregates shall be clean and shall not contain any foreign, matter silts, loose or destructive substances, harmful chemicals etc.

Aggregates shall be stored in proper bine, which shall have good drainage to preclude inclusion of foreign matter and preserve the gradation. Sufficient live storage shall be maintained to permit segregation of successive shipment placing of concrete at the required rate and such procedures as inspection and testing.

If required the aggregate shall be washed before use. The following chart indicates the theoretical desirable grading to be obtained from the aggregates. The grading of aggregates for use on works shall be adjusted such that they fall within the theoretical grading area indicated.

The work strength and situation under which these grading are to be adopted are stipulated hereinafter in these specifications.

Proper sieve analysis shall be carried out to determine the best gradation obtainable from the available aggregate. The sieve analysis shall be performed as per standard practice and as laid out in the relevant Indian Standards.

A complete set of Standards sieves shall be provided by the contractor at the construction site at all times. The graphs in connection with the sieve analysis and the standards of approval for the aggregates are in P.74.

T .3.6 Types of Concrete, strength etc.:

The bil of Quantities specifies various types of concrete. The strengths corresponding to these types is as per table below:

TYPES OF CONCRETE

Sr. No.	Types of concrete	Compression Strength at 28 days.	
		Metric Kg/ Cm ² or Sp. Cm.	British lb/in ²
1	M-100	100	1420
2	M-150	150	2150
3	M-200	200	2840
4	M-250	250	3560
5	M-300	300	4260
6	M-450	450	6400

Even though the bill of Quantities specifies various types of concrete, it is possible that the type may be altered to suit the site conditions. The compressive strength indicated above pertains to pressure test on works test cubes, 15 cm x 15 cm x 15 cm. after normal curing for 28 days.

The type of concrete for any particular situation or work shall be as per instructions given to the contractor by Architect /Engineer notwithstanding snything contained in the forgoing clauses.

T.3.7. Water :

Water for all concrete work shall be clean free from deleterious matter such as oils, acids, alkalies, sugar and vegetables matter. Every attempt shall be made to use water, which is fit for drinking purposes. Water storage facilities provided by the contractor shall be maintained properly to preclude contamination of water by any of the harmful substances. The quantity of

water to be added to concrete for mixing shall be such as to afford workability consistent with strength.

T.3.8. Tests for determination of strength for concrete :

As will be apparent from the Bill of quantities, the strength of concrete specified is the criterion and the contractor shall make every effort to obtain the specified strengths by good quality control. In case of concrete which does not obtain the specified strengths at 28 days, such work shall be demolished and re-constructed to obtain the requisite strength all as directed by Architect / Engineer. To determine whether concrete in any particular part of the work is of requisite strength or not, test cubes (works test cubes) shall be made from samples collected from the concrete being poired for the particular part and determined as per acceptance criteria detailed hereinafter. The salient features for the collection of samples is as indicated below. :

Testing of concrete cubes for determining compression strength.

T.3.8.1 Quality :

As specified.

T.3.8.2.2. Compression strength :

Shall be as specified for the particular type of concrete.

T.3.8.3. Cubes :

The size of cube to be prepared and tested shall be 15 x 15 x 15 cm (6" x 6" x 6"). The number of cubes to be collected from each samples as detailed below shall be six. Three cubes each are intended for testing at 7 and 28 days respectively and determining the strength.

Cubes tested at 7 days should give strength at 28 days, it shall however be expressly understood that the test result at 28 days only shall govern and the 7 days tests are intended to obtain a fair idea only.

T.3.8.4. Number of tests :

The Number of cube tests in a work shall be entirely at the direction and as directed by the resident Engineer. Cubes shall generally be collected for various structural members and also for works at various levels. It shall also be collected whenever the usual quality for a particular is suspected.

T.3.8.5. Preparation and Testing of cubes :

Casting of cubes, preparation of moulds for the same, processing and curing the cubes and pressure testing the same be as per detailed instructions which will be issued to the contractor from Architect / Engineer from time to time or as per relevant Indian standards as amended upto date as directed.

T.3.8.6. Equipment moulds, testing etc. :

It is the entire responsibility of the contractor to prepare and get the cubes tested and provide for all material, labour, moulds equipment, facility and charges for testing etc. The contractor's rate for concrete work shall be deemed to include for these and no extra whatsoever is admissible on this account.

T.3.8.7. Criteria for acceptance of works :

Part or element of concrete work shall be deemed to be acceptable, provided the three cubes tested for 28 days strength conform to the following :

- a) Average of the three cube shall not be less than the specified strength.
- b) No individual strength cube shall be less than 90% of the specified strength.
- c) If any individual cube strength exhibits more than 133% of the specified strength, such cube shall be classified as freak and the criteria in (a) and (b) above shall be applied for the remaining 2 cubes only and the acceptability determined.

T.3.8.8. Quantum of cubes and testing :

A set of six cubes be cast per every 50 cum. Of concrete.

OR

A set of six cubes on every day of concreting.

OR

A set of six cubes on every important element as decided by Architect / Engineer. The decision of Architect / Engineer in this regard shall be final and binding.

T.3.9. Batching and Making of Concrete :

All batching of aggregates and cement shall be by column. All the necessary equipment such as measuring boxes, devices for determination off moisture and bulk in sand, slump cone etc. shall be provided by the contractor. Contractor shall be machine mixed until there is a uniform distribution of materials and uniform colour and consistency is achieved and under no circumstances for less than two minutes.

A wooden board approximately 30 cm. X 40 cms. Shall be put up at the concrete mixer on which shall have been legibly written in English and the

local language, the quality of the concrete that is being mixed, the proportions and other relevant data. All concrete shall be vibrated.

T.3.9.1. Slump :

If in the opinion of Architect / Engineer, slump cone tests are required to be performed to establish workability, the same shall be carried out free of cost slump tests are however, to serve as guide only.

T.3.10. Form work :

Only new M.S. Plates new marine plywood with M.S. spans

and M.S. props shall be used for centering work:

Generally all formwork shall be so made as to produce exposed, clean and true concrete surface, except where plaster to the concrete surface is specified.

Unless specifically stated to the contrary (as in case of special items such as present arches and tiles, precast slabs, secondary beams etc.) all concrete work is intended to be plastered the contractor shall specially bear this in mind while quoting his rates for formwork.

Formwork shall be properly designed and constructed such that it is rigid enough to remain free from bulging, sagging or deformation during placing of concrete. It should also be so constructed as to facilitate removal of the same without damage to concrete. The formwork shall be adequately watertight to prevent any loss of liquid. All formwork shall be accurately erected in regard to size, levels etc. in case of timber formwork the surface of forms in contact with concrete surfaces shall be wrought. The joints between boards shall be close fitting and very thin of concrete surfaces designed to have exposed finish and not intended to be plastered. All formwork shall be properly cleaned before any concreting is carried out.

Surfaces of forms coming in contact with concrete treated with approved form emulsions. It shall be ensured that these emulsions don't stain or discolor the natural color of concrete.

All formwork shall be removed as per latest IS:456 formwork without shock or vibration. Edges of beams and columns if required to have chamfers shall be obtained by suitably fixing triangular edge beads 20mm x 20mm to the forms (No extra rate is admissible to the contractor on account of these incidental and minor works.).Likewise, where drip notches are necessary, they should be formed by suitably shaped fillets nailed in forms. Formwork for all beams and other horizontal construction members shall be built to an upward camber of 1/300 of the span (in the center) to nullify the effects of optical illusion. This camber shall be in addition to such camber as may be required and shown in the Static Calculation

T.3.11. Transporting and pouring of concrete :

No mixing of concrete shall be started unless the situation where they are to be poured are prepared and kept ready concrete shall be poured immediately on preparation. Transporting of concrete shall be done as speedily as possible and also in a manner to prevent segregation of aggregates. No re-tempered concrete shall be allowed to be used on the works. Concrete in foundation cellars or such other situations involving depth, shall not be dumed from a height. It shall be lowered and placed in position by proper arrangements.

Before fresh concrete is places against an already cast hardened section, such surfaces shall be roughened swept clean moistened with water and treated with cement slurry. Fresh concrete shall then be poured as required. Under no circumstances will concrete where initial set has commenced to be used.

Dewatering of excavating for concreting where necessary shall be carried out by the contractor as directed and the rates quoted by the contractor are deemed to be inclusive of such dewatering.

T.3.12 Consolidation and processing of concrete :

Concrete for all works shall be compacted by means of suitable vibrating equipment one or more spare vibrators which are in complete working conditions shall always be kept ready at site to be put into commission in case of failure of the Vibrators under use. The vibrators shall operated by skilled personnel, thoroughly instructed as regards the mode, frequency, duration etc regarding vibration.

T.3.13 : Finish to concrete surfaces :

Finish to concrete surfaces at various situations shall be as per directions of Architect /Engineer. There form finish is specified the final surface shall be smooth and even no undulations ridges, spots etc. shall be permitted. They shall also be laid to patterns as directed. In case surface intended and directed for form finish, exhibit any of the defects above mentioned, the surface shall be rubbed with carborundum or platered and finished all as directed at the risk and cost of the contractor. The decision as to the accessibility or otherwise of a surface will be notified Architect /Engineer and the contractor will implement the instructions accordingly.

T.3.14 Concrete cover for reinforcement:

Where not specifically indicated in the Drawing concrete cover for reinforcement shall be as per latest Indian Standards and as per directions at site from time to time. Proper concrete cover blocks to suit various covers as required shall be provided in adequate numbers sufficiently ahead of the work.

T.3.15 Construction Joints :

Construction joints in concrete work shall be provided as far as possible only at predetermined places in consultation with Architect /Engineer. Joint shall be provided as specified in latest Indian Standards or as directed by Architect /Engineer. “Monelithex” Jointing compound shall be used in a manner specified by the manufacturers, at all construction joints.

T.3.16. Curing :

It is very important that all cement concrete work shall be cured properly. All concrete work shall be covered with a layer of sacking, canvass hessian or similar absorbent material and kept wet continuously for not less than a fortnight or as directed. Water used for curing shall also be free from any deleterious substances and shall generally be fit for drinking. The work shall be adequately protected from rains, winds and direct sunrays.

T.3.17 Opening and Inserts :

All opening and inserts which are designated in due time will be exactly provided by the contractor including supply of materials. The Contractor should also fix the stainless steel anchors or such items which may be supplied by the Employer in exact position and in a perfect lines and levels. Inserts apply to such items as timber, dowels bracket loop, suspension irons, hooks, screws, plates, pipe of various types and diameter etc. openings in concern or masonry must be provided in exact location to correct shape, size and depth or slightly bigger, if directed so, as shown in drawings or as instructed. It must be clearly understood that the provisions of inserts and openings as contemplated in this contract are to be carried out with “utmost precision”. And any deviation of the same from that shown in drawing or instructed have to be rectified by the contractor at his own cost and responsibility. The contractor shall not charge extra for placing / embedding only of the inserts provided by the clients.

T.3.18 Mild steels and Tor Steel Reinforcement :

All M.S. reinforcement for concrete work shall conform strictly to the latest Indian Standards (IS : 456- Part-II) they shall be of tested quality with a permissible stress value of 1400 Kg/ Cu² (2000 lb/in²). Ribbed Tor steel of cold twisted steel for reinforcement shall be of tested quality and shall conform to the relevant Indian Standards (IS: 456) Reinforcement shall be fabricated to shapes and dimensions shown on the Drawings and shall be placed where indicated on the drawing or required to carry out the intent or drawing and specifications or as directed Architect /Engineer.

Before placing Reinforcement shall be thoroughly cleaned of loose rust coating etc.

Which would result in reducing or destroying the bond oiling the bars to clean them is strictly prohibited . Bending straightening, cutting etc. Operations shall be carried out in a manner not injurious to the material. All reinforcement shall be bent cold. Unless

otherwise directed, reinforcement shall not be spliced at points of maximum stresses. Architect / engineer shall be informed of the same before such splicing is taken up. Laps and splicing shall conform to the latest Indian standards.

Tor steel manufactured under the license from the torsteel research foundation with Fe 415 grade and above shall only be used. Mild steel of FE 250 grade I shall be used wherever specified.

Reinforcement shall be accurately tied at all intersections and laps with 16 SWG soft drawn binding wire, such that the reinforcement will be given a rigid structure. Binding wire will not be measured or accounted for separately.

The Contractor's rate for reinforcement shall be deemed to include for binding wire. Reinforcement will be measured and paid for according to bending lists, without allowances for cutting, wastage, binding wire etc. Authorised laps and hooks shall however be accounted for in case the Contractor or Architect /Engineer desires to resort to welding or swivel nuts or welds shall however be made as if the laps have been provided and no extra claim whatsoever shall be admissible on this account.

Reinforcement shall be assembled in place with proper concrete cover blocks to suit various covers as required. When cold twisted steel, reinforcement is specified, it shall conform to IS :1986/ 1966.

SCHEDULE ' A '

Schedule showing (approximately) the materials to be supplied from the contractor for work contracted to be executed and the rates at which they are to be charged for ;

Particulars	Rate at which the materials Will be charged to the Contractor	Place of delivery
	Unit	Rs. Ps.

NOTE : TO BE PURCHASED BY THE CONTRACTOR IN OPEN MARKET.

CONTRACTOR

Owner.

Schedule B

Name of Work : Shoulder Development of road from Ch. Shivaji Statue to Telephone Office, Ichalkaranji.

ABSTRACT

Sr.No	Items	Quantity	Rate	Amount
1	Excavation for Road way in hard murum including deessing section to the required grade camber & side slopes & conveying the excavated materials with all lifts up to a lead of 50 km & spreading for embankments or stacking as directed.	375.00 cum	52.30	19612.50
2	Supplying 40/60 mm trap / granite / quartzite / gneiss stone over size metal at site, including conveying and stacking complete by breaking boulders. Spec No. Rd. 20 Page no. 200 D.S.R. P/I - 241/52	250.00 Cum	379.95 Rs/Cum	94987.50
3	Spreading 40/60 mm Metal including Sectioning Complete.	250.00 Cum	16.50 Rs/Cum	4125.00
4	Compacting the sub grade / gravel / over size metal (200 mm loose) layers with power rolling including necessary, labour, material & artificial watering complete. Spec No. Rd. 35 Page no. 209 D.S.R. P/I - 242/69	2500.00 Sq.mt.	7.05 Rs/Sq.mt	17625.00
5	Providing and laying in situ ,Cement concrete M-20 of trap/granite/quartzite/gneiss metal for foundation and bedding including bailing out water, formwork, compacting curing complete.	250.00 cu.m	2640.30 Rs/cu.m	660075.00
6	Providing and casting in situ ,Cement concrete M-15 of trap/granite/quartzite/gneiss metal for R.C.C. pardi a including centering formwork, compacting curing complete.	7.85 cu.m	4164.66 cu.m	32692.55
7	Providing & fixing Mild steel bar Reinforcement of Various diameters for R.C.C. Pardi as per designs, drawings including cutting bending hooking the bars, binding with wires or tack welding as required complete.	616.00 kg	30616.50 cu.m	18859.76

Total cost 8,47,977.30

Engineer
Ichalkaranji Textile Development Cluster Ltd.