

MUNICIPAL CORPORATION BATHINDA

(SEWER DESILTING PROJECT)



TENDER DOCUMENT FOR WORK OF REMOVING DEBRIS / SILT FROM EXISTING SEWER TRUNK PIPELINE/DISPOSAL SUMPS BY MECHANIZED SYSTEM USING SUPER SUCKER MACHINE AND CCTV IN DIFFERENT AREA OF MUNICIPAL CORPORATION, BATHINDA.

TENDER DOCUMENT

Municipal Commissioner
Bathinda Municipal Corporation.
Mall Godown Road, BATHINDA – 151001
PHONE : 91-0164-2252811-12 Fax: 91-0164-2235246
Website: www.mcbathinda.com e-mail: cmcbathinda@gmail.com

BATHINDA MUNICIPAL CORPORATION

TENDER DOCUMENT FOR WORK OF REMOVING DEBRIS / SILT FROM EXISTING SEWER TRUNK PIPELINE/DISPOSAL SUMPS BY MECHANIZED SYSTEM USING SUPER SUCKER MACHINE AND CCTV IN DIFFERENT AREA OF MUNICIPAL CORPORATION, BATHINDA.

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Volume-I	Technical Bid	
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Volume-II	Financial Bid	
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Last date of receiving bids	(i) Technical Bid	05.03.13 upto 15:00 hrs
	(ii) Financial Bid (only online)	05.03.13 upto 12:00 hrs

Date of bids opening	(i) Technical Bid	06.03.13 upto 11:00 hrs
	(ii) Financial Bid	07.03.13 upto 15:00 hrs

(Financial bids only technically qualified bidders shall be opened)

TENDER DOCUMENTS

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MEMORENDOM OF THE WORK

Municipal Commissioner invites percentage rate sealed tenders from interested contractors for work of removing debries / silt from existing sewer pipeline by super sucker machine in different areas of Municipal Corporation, Bathinda.

- 1 Name of work Tender Document For work of removing debries / silt from existing sewer trunk pipeline/**disposal sumps** by mechanized system using super sucker machine and CCTV in different areas of Municipal Corporation, Bathinda
- 2 Time Limit 12 months
- 3 Estimated Cost put to tender Rs. 4,44,00,000.00
- 4 Earnest Money Deposit Rs. 8,88,000.00 (Demand Draft in favour of Municipal Commissioner, Bathinda. To be submitted as prescribed in 6.0 below. Demand Draft shall be valid for 90 days.
- 5 Tender fee (Non refundable) Rs. 2000 /- (Demand draft in favour of Municipal Corporation, Bathinda)
- 6 Submission of EMD and Tender Fees In separate sealed cover each for EMD and Tender Fees along with Technical Bid as described in the invitation of tender and submitted to Corporation Engineer, Municipal Corporation, Bathinda.
- 7 Tenders issue date Tenders from the website www.mcbathinda.com shall be downloaded from 13.02.13 to 05.03.13
- 8 Last date of receiving Bids (i) Technical Bid 05.03.13 upto 15:00 hrs
(ii) Financial Bid 05.03.13 upto 12:00 hrs
(only online)
- 9 Date of bids (i) Technical Bid 06.03.13 upto 11:00 hrs
Opening (ii) Financial Bid 07.03.13 upto 15:00 hrs
(Financial bids only technically qualified bidders shall be opened)
- 10 Mode of sending theTender Documents Document shall be submitted in sealed envelopes by Speed post/ Courier or in person as described in submission of the tender& rates will be quoted online.

Conditional tenders will not be accepted. Municipal Commissioner reserves the right to reject any or all the tenders without assigning any reason thereof.

Seal and Signature of the Bidder
Date:

Corporation Engineer
Bathinda Municipal Corporation

INSTRUCTION TO BIDDERS

Name of Work : Tender Document For work of removing debries / silt from existing sewer trunk pipeline/**disposal sumps** by mechanized system using super sucker machine and CCTV in different areas of Municipal Corporation, Bathinda.

Tender: Documents with General Conditions and Technical Specifications with BOQ.

1. Estimated cost: - Rs. 4,44,00,000
- 2 (A) Solvency Certificate Solvency certificate for an amount equal to 20 % of the estimated cost of works plus the amount of works on hand still to be executed by the bidder. A solvency certificate to this effect shall be submitted by bidder from any Nationalized bank.

(B) Security Retention @ 10% of the value of work. The same will be deducted from each RA bill. It will be released after 6 months of completion of work.
3. Mode of sending the Tenders By Speed Post / Courier/ in person
Main Cover Contains
Separate cover of EMD, Separate cover for Tender Fees.
- 4 Tender validity period : Tender shall be valid for 90 days from the date of submission of the tender
5. Time of Completion: 12 months from the date of work order.
6. Compensation for delay If Contractor fails to complete the work within the stipulated time then delay (0.10%) zero point one percentage of contract price for uncompleted work per day subject to a maximum up to ten percent of balance work to be executed or as decided by Municipal Commissioner
7. Last date of receipt : 05.03.13, 12:00 hrs. online only.
8. Water, Electricity Contractor shall have to make his own arrangements for water and electricity for the purpose of work at site at his own expense.

9. Tenders, which do not fulfill all or any of condition or are submitted incomplete in any respect or are conditional tenders, will be rejected. Municipal Commissioner reserves the right to reduce/increase the scope of work and contract without assigning any reason thereof.
10. No price escalation will be paid / recovered for the works mentioned in the Tender.
11. No advance for machinery or materials will be given.
12. Mobilization advance will not be given.
13. Conditional tenders will not be accepted.

Seal and Signature of the Bidder
Date:

Corporation Engineer
Bathinda Municipal Corporation

Section A

Information to Bidders

A. General

1. Scope of Bid

1.1 The Bathinda Municipal Corporation hereinafter called "the Employer" invites bids for the construction of works (as defined in these documents, hereinafter referred to as "the Works") detailed in the table given in the IFB.

1.2 The Works consist of:

- a) Temporary or permanent plugging in the running sewer to divert the flow to existing another line passing nearby or to the same sewer drain stream.
- b) Removing debris / silt from existing pipeline & disposal sumps by Mechanical equipment like super sucker with jetting machine
- c) Commissioning the Pipeline of the Size cited in the BOQ with Clean/ Sewage Water.
- d) Construction of new Manhole on existing line with brick missionary or RCC if required
- e) Maintaining Environmental measures within limits specified by CPCB/PPCB with the help of mechanical / any type of equipment for the public as well as workers.
- f) Providing Safety Measures for the workers as well as public passing around the work.

1.3 The works under this Contract shall be carried out in accordance with the bidding documents constituting the contract and shall consist of various salient items as described below:

2. Source of Funds

2.1 The expenditure on these Works will be met by MUNICIPAL CORPORATION, BATHINDA.

3. Eligibility criteria for Bidders

This invitation for bids is open to bidders who meet the following requirements:

- 3.1 The bidder shall have experience of similar type of the works in any Govt., Semi-Govt. or ULBs of any such organisation with the latest de-silting equipments and undertaken as per Supreme Court/ Punjab & Haryana High Court Guidelines / Direction of Govt. of Punjab.
- 3.2 Bidder shall have completed at least one similar work costing ninety lacs or must have completed work in one financial year costing rupees 4 crore.
- 3.3 Bidder shall have experience of de-silting of sewer diameter 30' or above of 5km length or more in India in last 3 years (ending on the date of opening of this bid) in any Municipal Corporation or in any Government organization or any such body with satisfactory certification of client.
 - 3.3.1 For the purpose of this clause, 'similar works' means the works of pipe de-silting/ cleaning with the help of vacuum technology (mechanised system).

- 3.4 Joint venture is allowed for the work. If a firm who as a joint venture have full filled condition no 3.2 & 3.3.
- 3.5 Bidders shall provide such evidence of their continued eligibility that is satisfactory to the Employer, as the Employer shall reasonably request.
- 3.6 Bidders must own minimum one number high capacity vacuum machine and minimum 2 number silt carrying pay loader.
- 3.7 Bidder must own minimum two number four wheeler colour CCTV system (for sewage flow) with camera having optical zoom with pan and tilt 360 degree in all three axis, which shall be controlled from outside of the sewer manhole.
- 3.8 Bidder shall have to submit completion certificate of effective and efficient workmanship from the organisations cited above.
- 3.9 At the Employer's request, the bidder having offered the lowest evaluated financial bid may be required to provide evidence of the origin of materials, equipment and services to the satisfaction of the Employer at the time of evaluation of the technical bid.
- 3.10 Bidders must provide certificates of training of their staff, which are on their payroll at the time of evaluation of the technical bid.

4. Qualification of the Bidder

4.1 To be qualified for award of Contract, bidders shall:

- a) Submit a written power of attorney authorizing the signatory of the bid to commit the bidder; and
- b) Have adequate experience, financial capacity, adequate available bid capacity and technical capability to undertake the Contract. Confirmation of these matters may involve the updating, verification and reassessment of information, which may previously have been considered during pre qualification.
- c) The bidder shall submit the following information (Form 1 of General Information) on eligibility and qualification duly updated including any changes since pre qualification:-

4.2 Disqualification

Even though the Bidders may meet the above criteria, they are subject to be disqualified for any of the following reasons:

- a) Misleading or false representation in the forms, statements and attachments submitted.
- b) Record of poor performance such as abandoning the work, rescinding of contract for which the reasons are attributable to the non-performance of the contractor, consistent history of litigation awarded against the applicant or financial failure due to bankruptcy.
- c) Has been identified by the Employer as poor performer in implementation of ongoing BMC works.

General information

All individual firms must complete the information in this form. Nationality information shall be provided for all owner(s) or applicant(s) that are partnership or individually owned firms.

1 Name of firm:

2 Head office address:

.....

3 Local office address (if any):

.....

4 Telephone/ Contact:

5 E-mail address:

6 Place of incorporation/registration:

7. Year of incorporation/registration:

- current contract commitments/works in progress
- financial data
- Additional information regarding litigation, debarment, arbitration, etc.

4.3 Debarment / Black listing

Notwithstanding the above, the Employer may debar or blacklist any of the bidder(s) for their misleading or false representations in the forms statements etc. for the period to be decided by the Employer.

5. Deleted

6. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his bid and the Employer will in no case be responsible or liable for those costs.

7. Site Visit

7.1 The bidder must have visited and examined the Site of Works and its surroundings and obtained for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the bidder's own expense.

B. Bidding Documents

8. Contents of Bidding Documents

The bidder is expected to examine carefully the contents of all in the bid documents. Failures to comply with the requirements of bid documents will be at the bidder's own risk. Pursuant to relevant Clause of the bid, bids which are not substantially responsive to the requirements of the bidding documents will be rejected.

C. Preparation of Bids

9. Language of Bid

9.1 The bid, and all correspondence and documents related to the bid exchanged between the bidder and the Employer shall be written in the Punjabi/English language. Supporting documents and printed literature furnished by the bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the English language, in which case, for purposes of interpretation of the bid, the English translation shall prevail.

10. Documents comprising the Bid

10.1 Bidder shall submit his financial bid through e-tendering only and the following documents along with technical bid.

Tender Document:-

- i) Earnest money for an amount as specified in the Invitation for Bids (IFB).
- ii) Technical bid in supplied format.
- iii) Tender fees as specified in the Invitation for Bids (IFB).

The Tender Document shall be hard bound and all pages machine numbered. Earnest money shall be furnished in "Original".

11. Bid Prices

11.1 Unless stated otherwise in the bidding documents, the Contract shall be for the whole

Works as described in bidding documents, based on the percentage rate amount in the Bill of Quantities submitted by the bidder.

11.2 The bidder shall fill % age above or below in BOQ amount(put to tender) and total amount **(both in figures and words).**

Items (for which rate has been provided) against which no quantity is entered will be paid for by the Employer on actual measurement onsite when executed.

All pages of the Technical bill shall be initialed.

11.3 All duties, taxes and other levies payable by the Contractor under the Contract, or for any other cause as of the date for submission of the bids, shall be included in the rates and prices and the total bid price submitted by the bidder and the evaluation and comparison of bids by the Employer shall be made accordingly.

12. Currencies of Bid and Payment

12.1 The % age below or above the estimated rates shall be quoted by the bidder.

12.2 All payments including advances, if any, shall be made in Indian Rupees.

13. Bid Validity

13.1 Bids shall remain valid for a period of 90 days (Ninty Days) after the deadline date for bid submission specified in relevant Clause. The Employer as non-responsive shall reject a bid valid for a shorter period.

13.2 In exceptional circumstances, prior to expiry of the original bid validity period, the Employer may request the bidders to extend the period of validity for a specified additional period. The request and the responses thereto shall be made in writing or by fax. A bidder may refuse the request without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid but will be required to extend the validity of his Bid Security for the period of the extension, and in compliance with relevant Clause in all respects.

14. Bid Security

Rs. 8,88,000.00 in the form of DD payable at Bathinda in favour of CMC, Bathinda.

15. Alternative Proposals by Bidders - Deleted

16. Format and Signing of Bid

16.1 The bidder shall prepare two copies of the documents comprising the bid as described in Instructions to Bidders.

16.2 The bid shall be typed or written in indelible ink and shall be signed by a person or persons duly authorized to sign on behalf of the bidder.

16.3 The bid shall contain no alterations, omissions or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case the person or persons signing the bid shall initial all such corrections.

16.4 All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be printed below their signatures.

D. Submission of Bids

17. Sealing and Marking of Bids

17.1 The bidder shall submit, the Technical Bid in one volume. This volume shall be sealed in envelope along with the separate sealed envelopes of tender fee and earnest money. These envelopes shall be sealed in an outer envelope. The Bid envelopes shall be marked as follows:

Outer Envelope:

TENDER DOCUMENT FOR Work Of removing debries / silt from existing sewer trunk pipeline/ disposal sumps by mechanized system using super sucker machine and CCTV for different areas of Municipal corporation, Bathinda

Inner Envelope (i) Tender fee

(ii) Bid Security

(iii) Technical Bid

17.2 The outer envelope shall

a) Be addressed to the Employer at the following address:
Corporation Engineer,
Mall Godown Road,
Bathinda Municipal Corporation,
Bathinda, Punjab.

b) Bear the following identification:

TENDER DOCUMENT FOR Work Of removing debries / silt from existing sewer trunk pipeline/ disposal sumps by mechanized system using super sucker machine and CCTV for different areas of Municipal Corporation, Bathinda

c) Indicate the name and address of the bidder.

17.3 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

18. Deadline for Submission of Bids

18.1 Bids must be received by the Employer at the address specified above not later than the time and date specified in the memorandum of the work.

18.2 The Employer may, at his discretion, extend the deadline for submission of bids by issuing an amendment in accordance with relevant Clause, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will thereafter be subject to the deadline as extended.

19. Late Bids

19.1 Any bid received by the Employer after the deadline for submission of bids prescribed in the relevant Clause will be returned unopened to the bidder.

20. Modifications and Withdrawal of Bids:- Deleted
E. Bid Opening and Evaluation

21. Opening of Tender (Bid)

- 21.1 The Employer will open the outer envelope of all the bids received for the work containing the sealed envelopes and announce the names of bidders in the presence of bidders or their representatives who choose to attend on the date and time mentioned in the IFB. In the event of specified date of bid opening being declared as a holiday for the Employer, the Tender will be opened at the appointed time and location on the next working day.
- 21.2 Envelopes marked technical bid shall then be opened. The Employer at the opening will announce bidder's name, the presence/or absence of Bid Security, the amount and validity of Bid Security and tender fees furnished with each bid and such other details, as the Employer may consider appropriate.
- 21.3 The bidders or their representatives who are present shall sign attendance sheet evidencing their attendance.

22. Examination of Tender and Determination of Responsiveness of Tender

- 22.1 If the earnest money furnished does not conform to the amount and validity period as specified in the Invitation for Bid and has not been furnished in the form, the bid shall be rejected by the Employer as non-responsive and the Tender volume will be returned to the bidder.
- 22.2 Subject to confirmation of the earnest money by the issuing bank, the technical bid accompanied with valid earnest money will be taken up for further valuation. In case, the Bank does not confirm the earnest money, the bid shall be rejected as non-responsive and no further evaluation carried out.

F. Award of Contract

23. Employer's Right to Accept any Bid and Reject any or all Bids

The Employer reserves the right to accept or reject any bid and to annul the bidding process and reject all bids, at any time prior to award of Contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders of the grounds for the Employer's action.

24. Notification of Award

- 24.1 Prior to expiration of the period of bid validity prescribed by the Employer, the Employer will notify the successful bidder by cable/fax/e-mail and confirmed by registered letter that his bid has been accepted. This letter (hereinafter and in the Conditions of Contract called "the Letter of Acceptance") shall name the sum which the Employer will pay the Contractor in consideration of the execution, completion and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Conditions of Contract termed "the Contract Price").
- 24.2 The notification of award will constitute the formation of the Contract.

25. Signing of Agreement

At the same time that the Employer notifies the successful bidder that his bid has been accepted, the Contractor will submit the Performance Security and attend the Employer's office for signing the Form of Agreement. Within 28 days of issue of letter of acceptance.

26. Corrupt or Fraudulent Practices

- 26.1 The Employer will reject a proposal for award if he determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question. The Employer will declare the firm ineligible, either indefinitely or for a stated period of time, to be awarded a contract by BATHINDA MUNICIPAL CORPORATION if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for the contract, or during execution.

- i) “corrupt practice” means behavior on the part of officials in the public or private sectors by which they improperly and unlawfully enrich themselves and/or those close to them, or induce others to do so, by misusing the position in which they are placed, and it includes the offering, giving, receiving, or soliciting of anything of value to influence the action of any such official in the procurement process or in contract execution; and
- ii) “fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Borrower of the benefits of free and open competition.

Seal and Signature of the Bidder
Date:

Corporation Engineer
BathindaMunicipal Corporation

SECTION: B:- GENERAL CONDITIONS OF CONTRACT

B1:- CONDITIONS OF PARTICULAR APPLICATION

1. The selection process will lay high emphasis on the ability and competency of contractors to do high quality work within the given time schedule.
2. The onus of providing, all necessary company / project related information, in appropriate manner and medium, so as to demonstrate the competency of the bidder and to allow proper evaluation, will rest entirely on the Bidder.
3. All information has to be typed or hand written legibly. All pages of the Bid have to be initialed by the bidder
4. ALL INFORMATION HAS TO BE SUBMITTED IN THE PRESCRIBED FORMAT ONLY.

Projects for which incomplete information has been provided will not be considered for evaluation. The Bidder may attach separate sheets if so required. However the final bound document submitted, has to be submitted in vertical A4 size (210mmx 297 mm).

5. The scope of work, project description mentioned in the document is indicative and payment will be made as per actual work done at site.
6. Conditional tenders will not be accepted.
7. BMC's decision for selection or rejection of the offers shall be final and binding to all.
8. Bidder should provide information as mentioned in the prescribed forms for similar projects. Information other than that related to similar projects shall not be considered for evaluation.
9. If BATHINDA Municipal Corporation is convinced that the Bidder has resorted to material misrepresentation or provided fraudulent information / statement, the said Bidder will be liable for disqualification / rejection at any stage.
10. Proof for fulfillment of eligibility criteria should be submitted along with Tender volume. If the Tender volume is submitted without valid documents and without proof of eligibility criteria will be rejected.
11. Those who do not meet with the eligibility criteria need not submit the Tender document.
12. Tenders, which do not fulfill all or any of condition or are submitted incomplete in any respect or are conditional tenders, will be rejected.
13. Municipal Commissioner reserves the rights to reduce/ increase the scope of work and contract without assigning any reason thereof.
14. Contractor shall have to make his own arrangements for water and electricity for the purpose of construction work at site at his own expense.
15. If the contractor fails to execute the said works within prescribed time limit, the said work will be carried out at the risk and cost by other contractors with 15 % supervision charges as may be decided by the Commissioner Municipal Corporation Bathinda.

16. Safety and Signage

Contractor has to arrange for the complete safety of the persons working for project, users of the road i.e. public and vehicles also. All the arrangements of traffic drums, metal / fiber cones, traffic blinkers, traffic signs as per design, safety tapes etc. to be arranged at site.

Necessary florescent marking on traffic signs to be provided so that it should be visible at night.

During night working hours safety in charge personnels shall be provided with florescent jackets.

17. Tax, Duties on Materials

All charge on account of Octroi, excise duties, terminal tax, sales tax. Service tax, VAT etc. on material procurement or any other component for the works from any source shall be borne by the contractors.

18. Water Supply:

The contractor shall arrange at his own cost, a suitable supply of piped water for the construction of the works and provide a satisfactory supply of potable water for drinking., washing, sanitation and cleaning down, The contractor will be responsible for all the costs where applicable of connection, meter installation, water consumed, water required for testing purposes, disconnection and the laying, maintenance and ultimate removal of any distribution system around the site. If contractors wishes to get the water supply from BATHINDA Municipal Corporation, if available then water connection at one point will be given. The contractor will arrange Balance distribution. Recovery at the actual charges as per prevailing norms of the BMC will be deducted for the actual consumption from each RA bill. In case of non-availability of water supply by BMC, then it is the responsibility of the contractor to arrange for the water supply at his own.

19. Electricity:

The Corporation will do co-ordination for the supply of the electricity. But the Contractor must make his own arrangements with the Corporation and Electricity Supply Authorities and with other contractors to connect to and take a supply from such services. Paying all costs in this regard will be the responsibility of the contractors.

The Contractor shall be entitled to use such supply. Electricity as may be available on the site for purpose of the work and shall pay such charges as is fixed by the appropriate supply Authorities.

In case if there is any delay in supply of power at site or any interruption or fault in the power during the work. No compensation shall be paid for idle labor staff, machineries and for use of diesel operating sets etc. as the case may be and no extra time limit shall be granted. In case of failure of the non-payment of power consumption charges, BMC reserves the right to deduct the same from the RA/ Final Bills of the contractor.

Special Clause: As per construction works welfare cess Act – 1996 one percent of tender amount shall be deducted against works welfare cess.

Seal and Signature of the Bidder
Date:

Corporation Engineer
Bathinda Municipal Corporation

B2:- TERMS & CONDITIONS OF CONTRACT

1. Performance Guarantee:-

The Contractor shall pay with in 28 days from the date of issuance of letter of acceptance & amount equal to 10% of the tendered cost/cost of work as a performance guarantee in form of FDR/Call Deposit or Bank Guarantee issued by any scheduled bank in favor of CMC Bathinda& valid for a period of one year.

2. Liquidated damages for delay

2.1 If the Contractor fails to complete the work under contract by the stipulated date, he shall pay liquidated damages of 0.1 percentage of the remaining contract value per day from the date of delaying the said work up to the date of completion and handing over to the BATHINDA Municipal Corporation.

2.2 The performance of the contractor shall be proportionate to the time elapsed. The following bench marks have been fixed.

With in 3 months of issue of LOA	15%
With in 6 months of issue of LOA	45%
With in 9 months of issue of LOA	75%
With in 12 months of issue of LOA	100%

If contractor fails in achieving any of the bench mark with in stipulated time as above, he will be panelized as per clause 2.1 above till the completion of bench mark.

2.3 Delays for requiring payment of ten percentage liquidated damages of the amount of balance work for performance shall be sufficient for termination of contract and forfeiture of security deposit including amount of performance guarantee in respect of work.

3. Default by Contractor:

If the Contractor shall neglect or fails to proceed with the work with due diligence or if he violates any of the provision of the Contract, the Engineer-in-Charge shall give the Contractor a notice, identifying deficiencies in performance and demanding corrective action. Such notice shall clearly state that it is given under the provision of this clause. After service of such notice, the Contractor shall not remove any plant, equipments and materials from the site. The BATHINDA Municipal Corporation shall have a lien on all such plant, equipments and materials from the date of such notice till the said deficiencies have been corrected as mentioned in the said notice.

If the Contractor fails to take satisfactory corrective action within ten days after receipt of such notice, the Engineer-in-charge on behalf of BATHINDA Municipal Corporation shall terminate the contract in whole. In case, the entire contract is terminated, the amount of security deposit and performance bond if any together with the value of the work done but not paid for, shall stand forfeited to the BATHINDA Municipal Corporation. The plants equipment and material held under this clause shall then be at the disposal of the BATHINDA Municipal Corporation to recover the amount equivalent to the liquidated damages and registration of the Contractor shall be kept in abeyance for three years from the date as fixed in all such cases.

The Engineer-in-Charge if necessary shall direct that a part or the whole of such plant, equipment and material be removed from the site within a stipulated period. If the Contractor fails to do so, the Engineer-in-Charge shall cause them or any part of them to be sold holding the net proceeds of such sale to the credit of the Contractor. After settlement of accounts, the lien by the BATHINDA Municipal Corporation on the Contractors remaining plant, equipments and balances of materials shall be released.

Termination of the contract in whole shall be adequate authority for the Engineer-in-Charge to demand discharge of the obligations from the guarantors of the security for the performance.

4. Clause:- 4

Deleted

5. Clause –5

In any case in which any of powers conferred upon the Engineer-in-Charge by clause 3 hereof shall have become exercisable and the same shall not have been exercised, the non exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable at any future date.

5.1 Valuation at date of forfeiture

The employer shall as soon as may be practicable after his entry consequent upon the expulsion of the Contractor shall certify what amount (if any) which had at the time of such entry and expulsion become reasonably due to the Contractor in respect of work then actually done by him under the contract including the value of any unused or partially used materials, any constructional plant and any temporary works which are taken over by owner under his exclusive rights.

5.3 If the Contractor dies

Without prejudice to any of the rights or remedies under this contract, if the Contractor dies employer shall have option of terminating the contract without any compensation to the Contractor.

5.4 Insolvency and breach of contract

The BMC may at any time, by notice in writing, summarily terminate the contract without compensation to the contractor in any of the following events:

- a) If the contractor commits any breach of the contract not herein specifically provided any right of action or remedy which shall have occurred or shall occur thereafter and provided also the contractors be liable to pay the BMC for any extra expenditure he is thereby put to and the contractor shall under no circumstances be entitle to any gain in repurchase.

5.5 In the event of the Engineer-in-Charge taking action under Clause 3, he may, if the so desires, take possession of all or any tools, plants, machineries, materials and stores in or upon the work or the site thereof or belonging to the Contractor or procured by him and intended to be used for the execution of the work or any part thereof, by paying or allowing for the same in account at the contract rate or in case of contract rates not being applicable at such reasonable rates, as may be comparable to current market rates where ascertainable of similar articles and comparable condition, to be certified by the Engineer-in-Charge. In the alternative the Engineer-in-Charge may by notice in writing to the Contractor or his clerk of the works, foreman or other authorised agent, require him to remove such tools, plants, machineries, materials or stores from the premises within a time to be specified in such notice and in the event of the Contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the Contractor's expense or shall remove them by auction or private sale at the risk and cost of the Contractor in all respect, and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses

of any such removal shall be final and conclusive against the Contractor.

6. Extension of Time limit:-

If the Contractor shall desire an extension of the time for completion of the work on the ground of his having been unavoidably hindered in its execution or any other ground, he shall apply in writing to the Commissioner before the expiration of the period stipulated in the tender or before the expiration of 30 days from the date of which he was hindered whichever is earlier Commissioner may, in his opinion, believe that there are reasonable grounds for granting an extension, grant such extension, as he thinks necessary or proper. The decision of the Commissioner in this matter shall be final.

7. Clause – 9:

The rates for items of works shall be valid only when the item concerned is accepted as having been completed fully in accordance with the sanctioned specifications. In cases where the items of work are accepted as not so completed, the Engineer-in-Charge may make payment on account of such items at such reduced rates as he may considered reasonable in preparation of final or on account bill.

8. Clause – 10:- Bills to be submitted monthly

The payment will be made once in a month. However, another payment will be made as desired by contractor and as agreed by BMC.

9. Clause – 11 :

The Contractor shall submit all the bills on the printed forms to be had on application at the office of the Engineer-in-Charge. The charges to be made in the bills shall always be entered at the rates specified in the agreement or at the part/reduced rates subject to the approval by the Engineer-in-Charge in the case of items not completed/executed as per agreements or in the case of any extra work ordered in pursuance of these conditions and not mentioned or provided for in the tender, at the rate hereinafter provided for such work.

10. Clause – 13:

10.1 The Contractor shall execute the whole and every part of the work in the most substantial and workman-like manner and both as regards materials and in other respect in strict accordance with specifications.

The Contractor shall also conform exactly, fully and faithfully to the designs, drawings and instructions in writing to the work signed by the Engineer-in-Charge. The design and the drawings shall be lodged in the office of the Engineer-in-Charge to which the Contractor shall be entitled to have access for the purpose of inspection at such office during office hours.

Where the instructions referred to above are not contained in separate letters addressed to the Contractor the same shall be recorded in the work order book, which shall be maintained and kept on the site of the work. The Contractor shall be required to sign such entries in the work-order book in token of having noted the instructions. However, if the Contractor fails to sign the work-order book for any reason whatsoever, the entry of the instructions in the work-order book shall be deemed to be due notice to him of the said instructions. The work-order book shall be open for inspection to the Contractor on the site of the work during office hours.

11. Clause14 –

11.1 The Engineer in charge shall have power to make any alterations in or addition to the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the Contractor shall be bound to carry out the work in accordance with any instructions in this connection which may be given to him in writing signed by the Engineer-in-Charge and such alteration shall not invalidate the contract and additional work which the Contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respect on which he agreed to do the main work and at the as are specified in the tender for the main work

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If the additional or alternation work includes any class of work for which no rate is specified in this contract when such class of work shall be carried out at the rate entered in the Schedule of Rates of the Department or, at the rates mutually agreed upon between the Engineer-in-Charge and Contractor, whichever are lower. If the additional or altered work, for which no rate is entered in the Schedule of Rates of Department is ordered to be carried out before the rates are agreed upon, then the contractor shall within seven days of the date of receipt by him of the order to carry out the work, inform the Engineer-in-Charge of the rate, he shall by notice in writing, be at liberty to cancel his order to carryout such class of work and arrange to carry it out in such manner as he may consider advisable, provided always that if the contractor shall commence work or incur any expenditure in regard thereto before the rates shall have been determined as lastly herein before mentioned, then in such case, he shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of the determination of the rate as aforesaid according to such rate or rate as shall be fixed by the Engineer-in-Charge. In the event of a dispute, the decision of the Municipal Commissioner of the Municipal Corporation shall be final.

Where, however, the work is to be executed according to the designs, drawings and specifications recommended by the Contractor and accepted by the

11.2 competent authority, the alterations above referred to shall be within the scope of such designs and specifications appended to the tenders.

11.3 The time limit for the completion of the work shall be extended in the proportion

11.4 that the increase in the cost occasioned by alteration bears to the cost of the original contract work, and the certificate of the Engineer-in-charges as to such proportion shall be final and conclusive.

11.5 Deleted

12. Clause – 15: No claim to any payment or compensation or for restriction of work :

If any time after the execution of the contract documents the Engineer-in-charge shall for any reason whatsoever, require the whole or part of the work, as specified in the tender, be stopped for any period or shall not require the whole or part of the work to be carried out at all or to be carried out by the Contractor, he shall give notice in writing, stating the fact to the Contractor who shall thereupon suspend or stop the work totally or partially, as the case may be. In any such case, except as provided hereunder, the Contractor shall have no claim to any payment or compensation whatsoever except as provided hereunder on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not so derive in consequence of the full amount of the work not having been carried out, or on account of any loss that he may be put to on account of materials purchased or agreed to be purchased or for unemployment of labour required by him. He shall not have also any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which may involve any curtailment of the work as originally contemplated.

13. Clause – 16: Time-Limit for unforeseen claims :

The Contractor shall not be entitled to any compensation from Municipal Corporation on any account unless where allowed by the conditions of this contract. In such case, the Contractor shall have to submit a claim in writing to the Engineer-in-charge within one month of the cause of such claim occurring. However, the contractor shall be responsible for normal maintenance of the work till the final bill for the work is prepared by the corporational officer.

14. Clause – 18 :- Work to be open to inspection Contractor or responsible agent to be present :

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

14.1 Employment of a qualified Site Engineer by the Contractor :

The Contractor shall employ full-time technically qualified staff during the execution of work as under :

15. Clause – 19:- Notice to be given before work is covered up :

The Contractor shall give not less than five day's notice in writing to the Engineer-in-charge or his subordinate in charge of the work before covering up or otherwise placing beyond the reach of measurement any work, in order that the same may be measured and correct dimensions thereof taken before the same is so covered up or placed beyond the reach of measurement and shall not cover up or place beyond the reach of measurement any work without the consent in writing of the Engineer-in-charge or his subordinate in charge of the work and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or consent obtained, the same shall be uncovered at the Contractor's expense and in default thereof, no payment or allowance shall be made for such work or for the materials with which the same was executed.

16. Clause – 20 :

If the Contractor or his workmen, or servants shall break, deface injure or destroy any part of the building or work in question or work in question in/on which they may be working or any building, road, fence, enclosure or grass-land or cultivated ground contiguous to the premises on which the work or any part thereof is being executed or if any damage shall be done to the work from any cause whatever before completion of the work or before the completion of the maintenance period whichever is later or any damage occurred / caused due to normal flood or rain or if any imperfections become apparent in it within three months from the grant of a certificate of completion, final or otherwise by the Engineer-in-charge the Contractor shall make good the same at own expenses or in default, the Engineer-in-charge may cause the same to be made good by other contractor and deduct the expenses (of which the certificate of the Engineer-in-charge shall be final) from any sums that may thereafter become due to the contractor or from his security deposit or the proceeds of sale thereof or a sufficient portion thereof.

16.1 Force Majeure :

Neither party shall be liable to the other for any loss or damage occasioned by or arising out of acts of god, and in particular, unprecedented Floods, volcanic eruption, earth quake or other convulsion of nature, and other acts such as but not restricted to general strike, invasion, the act of foreign countries, hostilities or war like operations before or after declaration of war, rebellion, military or usurped power which prevent performance of the contract and which could not have been foreseen or avoided by a prudent person.

NOTE :“Unprecedented flood” means the flood crossing the high flood level of the past 50 years which is on the available record.

17. Clause – 21:- Contractor to supply plant, ladders, scaffolding etc., and is liable for damage arising from non-provision of lights, fencing etc., :

The Contractor shall supply at his own cost all materials (except such special materials if any, as may, in accordance with the contract of be supplied from the Public Works Corporation Stores), plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding and any temporary works which may be required for the proper execution of the work whether in the original, altered or substituted from and whether included in the specifications, or other documents forming part of the contract or referred to in these conditions or not and which may be necessary for the purpose of satisfying or complying with requirements of the Engineer-in-charge as to any matter or to which under these conditions he is entitled to be satisfied or which he is entitled to require together with carriage therefor to and from the work. The Contractor shall also supply without charge the requisite number of persons with the means and material necessary for the purpose of setting out works and counting, weighing and assisting in the measurement or examination at any time and from time to time, of the work or the materials. Failing this, the same may be provided by the Engineer-in-Charge at the expense of the Contractor and the expenses may be deducted from any money due to the Contractor under the contract or from his security deposit, or proceeds of sale thereof, or of a sufficient portion thereof. The contractor shall provide all necessary fencing and lights required to protect the public from accident and shall also be bound to bear expenses of defense of every suit, action or other legal proceeding at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person, or which may, with the consent of the Contractor, be paid in compromising any claim by any such persons.

17.1 The contractor shall provide suitable scaffolds, working platforms, gangways and stairways and shall comply with the following regulations in connection therewith –

Suitable scaffolds shall be provided for workmen for all work that cannot be safely done from a ladder or by other means.

- (i) Under the supervision of a competent and responsible person,
- (ii) Appointed by Contractor and by competent workers possessing adequate experience in this kind of work.
 - (a) All scaffolds and appliances connected therewith and all ladders shall –
 - (i) be of sound material.
 - (ii) Be of adequate strength having regard to the loads and strains to which they will be subjected and
 - (iii) Be maintained in proper condition.
 - (b) Scaffolds shall be so constructed that no part thereof can be displaced in consequence of normal use.
 - (c) Scaffolds shall not be overloaded and so far as practicable the load shall be evenly distributed.
 - (d) Before installing the lifting gear on scaffolds, special precaution shall be taken to ensure strength and stability of the scaffolds.
 - (e) Scaffolds shall be periodically inspected by a competent person
 - (f) Before allowing a scaffold to be used by his workman, the Contractor shall, whether the scaffold has been erected by his workmen or not, take steps to ensure that it complies fully with the regulations herein specified.
 - (g) Working platforms, gangways shall –
 - (i) be so constructed that no part thereof can sag unduly or unequally.
 - (ii) be so constructed and maintained having regard to the prevailing conditions as to reduce as far as practicable risks of persons tripping or slipping: and –
 - (iii) be kept free from any unnecessary obstruction.
 - (h) In the case of working platforms, gangways working places and stairways at a height exceeding 3.25 meters.
 - (i) Every working platform and every gangway shall be closely boarded unless other adequate measures are taken to ensure safety.
 - (j) Every working platform and every gangway shall have adequate width, and every working platform, gangway, working place and stairway shall be suitably fenced.
 - (k) Every opening in the floor of a building or in working platform shall, except for the time and to the extent required to allow the access of person or the transport or shifting of materials be provided with suitable means to prevent the fall of persons or material. When persons are employed on a roof where there is danger of falling from a height exceeding 3.25 meters, suitable precaution shall be taken to prevent the fall of persons or material.
 - (l) Suitable precautions shall be taken to prevent persons being struck by articles which might fall from scaffolds or other working places.
 - (m) Safe means of access shall be provided to all working platforms and other working places.

17.2 The Contractor shall comply with the following regulations as regards the Hoisting Appliances to be used by him –

- (a) Hoisting machines and tackle, including their attachments anchorages and supports shall –
 - 1) be of good mechanical construction, sound material and adequate strength and free

- from patent defect; and
- 2) be kept in good repair and in working order

Every rope used in hoisting or lowering materials or as a means of suspension shall be of suitable quality and adequate strength and free from patent defect.

Hoisting machines and tackle shall be examined and adequately tested after erection on the site and before use and be re-examined in position at intervals to be prescribed by Engineer-in-Charge.

Every chain, ring, hock, shackle, swivel and pulley block used in hoisting or lowering materials or as a means of suspension shall be periodically examined.

Every crane driver or hoisting-appliance-operator shall be properly qualified.

No person who is below age of 15 years shall be in control of any hoisting machine, including any scaffold, nor shall give signals to the operator.

In the case of every hoisting machine and of every chain, ring hook, shackle, swivel and pulley block used in hoisting or lowering or as a means of suspension, the safe working load shall be ascertained by adequate means.

Every hoisting machine and all gears referred to in preceding regulation shall be plainly marked with the safe working load.

In the case of hoisting machine having a variable safe working load, each safe working load and conditions under which it is applicable shall be clearly indicated.

No part of any hoisting machine or any gear referred to in regulation „g“ above shall be loaded beyond the safe working load except for the purpose of testing.

Motors, gears, transmissions, electric wiring and other dangerous parts of hoisting appliance shall be provided with sufficient safeguards.

Hoisting appliances shall be provided with such means as will reduce to a minimum the risk of the accidental descent of the load.

Adequate precautions shall be taken to reduce to minimum the risk of any part of a suspended load becoming accidentally displaced.

18. Clause – 22:- Measures for Prevention of Fire :

The Contractor shall not set fire to any standing jungle, trees, bush wood or grass without a written permit from the Engineer-in-charge.

When such permit is given, and also in all cases when destroying cut or dug up trees, bush wood, grass etc., by fire, the Contractor shall take necessary measures to prevent such fire spreading to or other-wise damaging surrounding property.

19. Clause – 23:- Liability of Contractors for any damages done in or outside work area

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

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

20. Clause – 24:- Deleted.

21. Clause – 25:- Deleted.

22. Clause – 26:- Work not to be sublet. Contract may be rescinded and security deposit forfeited for subletting it without approval or for bribing a public officer or if contractor becomes insolvent :

The contract shall not be assigned or sublet without the written approval of the Engineer-in-charge. And if the contractor shall assign or sublet his contract or attempt to do so or become insolvent or commence any proceeding to get himself be adjudicated an insolvent or make any compromise with his creditors, or attempt to do so, the Engineer-in-charge may, by notice in writing rescind the contract. Also if any bribe, gratuity, gift, loan, perquisite, reward or advantage, pecuniary or otherwise, shall either directly or indirectly be given, promised or offered by the contractor, or any of his servants or agents to any public officer or person in the employ of Municipal Corporation in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the Engineer-in-Charge may thereupon by notice in writing rescind the contract. In the event of contract being rescinded, the security deposit of the Contractor shall thereupon stand forfeited and be absolutely at the disposal of Municipal Corporation and the same consequences shall ensue as if the contract had been rescinded under clause 3 hereof and in addition the Contractor shall not be entitled to recover or be paid for any work thereof actually performed under the contract.

23. Clause – 28:- Changes in the constitution of firm to be notified :

In the case of a tender by partners, any changes in the constitution of a firm shall be forthwith notified by the contractor to Engineer-in-Charge for his information.

24. Clause – 29:- Works to be under directions of Municipal Commissioner

All works to be executed under the Contract shall be executed under the direction and

subject to the approval in all respects of the Municipal Commissioner for the time being, who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

25. Clause – 30:- Dispute referred to Court of law :

The disputes relating to this contract, so far as they relate to any of the following matters, whether such disputes arise during the progress of the work or after the completion or abandonment thereof, shall be referred to the court of law

- (i) The rates of payment under clause 5 for any tools, materials and stores in or upon the works of the site thereof or belonging to the contractor or procured by him and intended to be use for execution of the work or any part thereof of which possession may have been taken by the Engineer-in-Charge under the said clause-5.
- (ii) The reduction in rates made by the Engineer-in-Charge, under clause 9 for the items of work not accepted as completed fully in accordance with the sanctioned specifications.
- (iii) The rates of payment for any class of work which is included in the additional or altered work carried out by the Contractor in accordance with the instructions of the Engineer-in-Charge under clause 14 and the rate for which is to be determined under the said clause 14.
- (iv) The rates of payment for materials already purchased or agreed to be purchased by the Contractor before receipt of notice given by the Engineer-in-Charge under clause 15, and / or the amount of compensation payable to the Contractor under the said clause for loss in respect of such materials.
- (v) The amount of compensation which the contractor shall be liable to pay under clause 17 in the event of his failure to rectify, remove or reconstruct the work within the period specified in the written intimation or the amount of expenses incurred by the Engineer-in-Charge under the said clause 17 in rectifying, removing, or re-executing the work or in removing and replacing the materials or articles complained of.
- (vi) The reduction of rates as may be fixed by the Engineer-in-Charge under clause 17 for the inferior work or materials as accepted or made use of.
- (vii) The amount of compensation payable by the Contractor for damages as estimated and assessed under clause 23.
- (viii) The amount payable to the Contractor for the work carried out under clause 33 in accordance with the instruction and the requirement of the Engineer-in-Charge in a case where there is no specifications.
- (ix) The disputes will be referred to court of law and its jurisdiction will be BATHINDA.
- (x) In case of dispute leading to the contractor or Municipal Corporation approaching to Court of Law, it shall be within the jurisdiction where the site of work is situated.
- (xi) The reference to court proceeding under this clause shall not:
 - i) affect the right of the Engineer in charge under clause 5 to take possession of all or any tools, plants, materials and stores in or upon the works of site thereof belonging to the contractor or procured by him and intended to be used for the execution of the work or any part thereof.
 - ii) Preclude the Engineer in charge from utilising the materials purchased by the contractor in any work or from removing such materials to other places, during the period the work is stopped or suspended in pursuance of notice given to the contractor under clause 15.

iii) Entitle the contractor to stop the progress of the work or carrying out the additional or altered work in accordance with the provisions of clause 14 or as the case may be, of clause 33.

26. Clause – 31:- Deleted.

27. Clause – 32:- Lump sums in estimates :

When the estimate on which a tender is made includes lump sum in respect of part of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items or if the part of the work in question is not in the opinion of the Engineer-in-charge capable of measurement, the Engineer-in-Charge may, as his discretion, pay the lump sum amount entered in the estimate and the certificate in writing of the Engineer-in-charge shall be final and conclusive against the Contractor with regard to any sum or sums payable to him, under the provisions of this clause. The Contractor shall arrange to construct, maintain and afterwards remove and reinstate any temporary access required for and in connection with the execution of the works. Reinstatement shall include restoring the area of the access route to at least the degree of safety, stability, drainage and appearance that existed before the Contractor entered the site. Action where no specifications of work for which there is no such specification, such work shall be carried out in accordance with the IS specifications, and in the event of there being no IS Specifications, then, in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineer-in-Charge.

28. Clause – 33:- Action where no specifications :

In case of any class of work for which there is no such specification, such work shall be carried out in accordance with the IS specifications, and in the event of there being no IS Specifications, then, in such case the work shall be carried out in all respects in accordance with the instructions and requirements of the Engineerin-Charge.

29. Clause – 34:- Definition of work :

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

30. Clause – 37:- Compensation under the Workmen’s Compensation Act :

The Contractor shall be responsible for and shall pay any compensation to his workman payable under the Workmen’s Compensation Act, 1923 (VIII of 1923) (hereinafter called the said ACT) for injuries caused to the workmen. If such compensation is paid by Municipal Corporation as principal under sub-section 12 (1) of the said Act, on behalf of the Contractor, it shall be recoverable by the Municipal Corporation from the Contractor under sub-section 12 (2) of the said section. Such compensation shall be recovered in the manner laid down in clause 1 above.

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

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

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

31. Clause – 38:-

The Quantities shown in the tender are approximate and no claim shall be entertained for qualities of work executed being less than those entered in the tender. In the case of increase in the quantities by more than 30 %, the new rate will be paid to the Contractor for the quantities in excess of 30%. The rates for the increased quantities as aforesaid will be fixed in the manner specified in clause – 14.

32. Clause – 40:-

No compensation shall be allowed for any delay caused in the starting of the work on account of delay in making available the full site of land at a time.

33. Clause – 41:- Claim for compensation for delay in the execution of work

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

34. Clause – 43:- Minimum age of person employed :No contractor shall

employ any person who is under the age of 14 years.

34.1 : The employment of donkeys and/or other animals and the payment of fair wages :

- (i) For asphalt work(s), as far as possible only the adult persons should be employed on Corporation OR the contracted work as the case may be. If the adult persons are not available, then the children below the age of 15 (Fifteen years) should not be employed under any circumstances.
- (ii) No contractor shall employ donkeys or other animals with breeching of string or thin rope. The breeching must be atleast three inches wide and should be of tape (Nawar).
No animal suffering from sores, lameness or emaciation or which is immature shall be employed on the work.
- (iv) The Engineer-in-Charge or his agent is authorised to remove from the work any person or animal found working which does not satisfy these conditions and no responsibility shall be accepted by Municipal Corporation for any delay caused in the completion work by such removal.

- (v) The Contractor shall pay fair and reasonable wages to the workmen employed by him in the contract undertaken by him. In the event of any dispute arising between he contractor and his workmen on the grounds that the wages paid are not fair and reasonable, the dispute shall be referred without delay to the Engineer – in – charge who shall decide the same. The decision of the Engineer – in – charge shall be conclusive and binding on the Contractor, but such decision shall not in any way affect the conditions in the contract regarding the payment to be made by Municipal Corporation at the sanctioned tender rates.
- (vi) The Contractor shall provide drinking water facilities to the workers / labourers employed on Municipal Corporation works. Amenities relating to sanitation shall also be provided to the workers / labourers employed on works (in urban areas). If the contractor fails to comply with these provisions, the Engineer - in - charge shall give notice in writing and if the contractor does not provide this facility to the workers /labourers within a period of ten days from the date of the notice in writing, the Engineer in charge shall there upon make the arrangement for drinking water at the cost of the Contractor.
- (vii) The Contractor shall provide the amenity of proper shade and shelter to the workers / labourers and their children on Municipal Corporation works as soon as the work starts. If the Contractor fails to provide shed and shelter, the Engineer-in – charge shall provide the same at the cost of Contractor.

35. Clause – 44:- Method of payment :

Payment to Contractor shall be made by cheque drawn on any treasury, accounts department of corporation.

35.1 : Any sum of money due and payable to the Contractor (including the security deposit returnable to the Contractor) executing any Municipal Corporation work under this contract shall be appropriated by Municipal Corporation and shall be set off against any claim of the Municipal Corporation for the payment of a sum of money arising out or under any other contract made by the Contractor with the Municipal Corporation. When no such amount for purpose of the recovery from the Contractor against any claim of the Municipal Corporation is available, such a recovery shall be made from the Contractor as arrears of land revenue.

36. Clause – 45:- Deleted

37. Clause – 47:- Deleted

38. Clause – 48:-

The rates to be quoted by the Contractor must be inclusive of sales tax. No extra payment on this account will be made to the Contractor.

39. Clause – 48:-

40. Clause – 50:- Fair Wages :

If the Contractor fails to pay within 7 (Seven) days to the labourer(s) / worker (s) the minimum wages prescribed by the Corporation under the minimum wages Act, 1948 as in force from time to time, the Engineer in charge shall be at liberty to deduct the amount payable to the labourer(s) worker(s) from his (Contractor's) bills or deposit(s) payable by the Contractor after making due inquiries and establishing the claim(S) of the labourers(s) worker(s). The Contractor shall not be entitled to any payment or compensation on account of any loss that the Contractor may have to incur on account of the action as aforesaid. Before the action as aforesaid, is enforced, a notice in writing to the Contractor shall be issued by the Engineer-in-charge to pay the wages as per Minimum Wages Act in force at the relevant time. If contractor does not act as aforesaid within seven days, then the action contemplated as above shall be taken against him.

41. Clause – 51:- Deleted

42. Clause – 52:- List of Machinery :

The Contractor shall also give a list of machineries in his possession and which he propose to use on the work.

43. Clause – 60:- Price Variation clause :

No Price escalation shall be given to contractor at any instance.

44. Clause – 61:- Fencing and Lighting :

- (a) The Contractor shall, unless otherwise specified, be responsible for the proper fencing, lighting, grading and taking of the necessary safety measures for all works comprised in the contract and for the proper provision of temporary road, way, footways, guards, fences, caution notices etc., as the same may be rendered necessary by reasons of the work for the accommodation of workmen, foot passengers or other traffic and of owners and occupiers of adjacent property and the public and shall remain responsible for any accidents that may occur on account of his failure to take proper & timely precautions.
- (b) All the arrangements made for fencing and lighting shall be maintained by the Contractor throughout the currency of the contract till the physical taking over of the work by Municipal Corporation.

45. Clause – 62:- Liability of accidents to persons :Responsibilities and liabilities of the contractor under Workmen's Compensation Act.

- (a) On the occurrence of an accident, which results in death of workmen employed by the contractor or which is so serious as is likely to result in death of any such workmen, the Contractor, shall within 24 hours of happening of such accident(s) intimate, in writing, to the Engineer in charge the fact of such accident(s). The contractor shall indemnify Municipal Corporation against all loss or damage sustained by the Municipal Corporation resulting directly from his failure to give intimation in the manner aforesaid including the penalties or fines, if any, payable by the Municipal Corporation as consequence of Municipal Corporation's failure to give notice under the Workmen's Compensation Act or otherwise to conform to the provisions of the said Act in regard to such accidents(s).
- (b) In the case of an accident, in respect of which compensation may become payable under Workmen's Compensation Act, whether by the Contractor or by the Municipal Corporation as principal Employer, it shall be lawful for the Engineer-incharge to retain out of money due and payable to the Contractor , such sum or sum of money as may, in the opinion of the Engineer in charge, be sufficient to

meet such a liability. The opinion of the Engineer in charge shall be final in regard to all matters arising under this clause.

63. Clause – 63:- Access to site and work on site :

The Engineer may, if he considers fit from time to time, enter upon any land(s), which may be in possession of the Contractor this contract for the purpose of executing any work not included in this contract and may execute such work not included in this contract by agent or by other Contractors, at his opinion and the Contractor shall, in accordance with the requirements of the Engineer-in-charge, afford all reasonable facilities for execution of the work including occupation of lands by structure or otherwise for any other contractor employed by the Municipal Corporation and his workmen or for the workmen of the Municipal Corporation who may be employed in the execution on or near the site of the work not included in the contract or of any contract in connection with or ancillary to the work and in default, the Contractor shall be liable to the Municipal Corporation for any delay or expense incurred by reason of such default. Provided always that if the exercise of these powers shall cause any damage to the contract, he may, within fifteen days of such damage arising, make a statement of the same to the Engineer in charge who shall, from time to time, assess the value in his judgement of such damage and the Municipal Corporation shall from time to time pay to the Contractor the amounts (if any) accepted as justified by the Engineer in charge.

46. Clause – 67:- Insurance of labourers :

The Contractor shall be responsible to arrange for insurance of all labourers. Skilled and unskilled, workers, supervisors etc., employed by him as per labour regulations of the state.

47. Clause – 71:- Progress schedule :

The Contractor shall furnish, within one month (unless extended by the Engineer in charge) of the order to start the work, the progress schedule in quadruplicate indicating the date of starting, the monthly progress expected to be achieved and the anticipated completion date of each major item of work to be done by him, also indicating dates of procurement and setting up the materials plants and machinery. The Schedule should include a statement of proposed general and detailed arrangements for carrying out works and of time, order and manner in which it is proposed that these shall be executed. The schedule should be framed keeping requirements of the clause 2 of Tender form in view and be such as in practice to the achievement towards completion of the work in the time limit and of the particular items on the dates specified in the contract and shall have the approval of the Engineer in charge. Further, the dates for the progress, as in this schedule shall be adhered to.

- (a) In case it is found necessary, at any stage, to alter the schedule, the Contractor shall submit in good time. A revised schedule incorporating necessary modifications proposed and get the same approved from the Engineer - in - charge is further empowered to ask for more detailed schedule or schedules, say, week by week, for any item or items and the Contractor shall supply the same as and when asked for.
- (b) The Engineer in charge shall have, at all times, the right, without in any way vitlating this contract forming grounds for any claim, to alter the order of the work or any part thereof and the Contractor shall also revise the progress schedules accordingly and submit four copies of the revised schedule to the Engineer - in - charge within seven days of the said Engineer's direction to alter the order of works.
- (c) The Contractor shall furnish sufficient plant, equipment and labour and shall work such hours and shifts as may be necessary to maintain the progress of the work as per approved progress schedule. The working and shift hours shall comply with all Corporation regulations in force and shall be such, as may be approved by the Engineer - in - charge and the same shall not be varied without the prior approval of Engineer - in - charge.

- (d) The Contractor shall from time to time, as may be required by the Engineer - in - charge, furnish the Engineer - in - charge with a statement in writing of the arrangements he proposes to adopt for the execution of this contract and the Engineer - in - charge may, if he considers necessary at any time advise alteration in the same, which the Contractor shall adopt on notice thereof.
- (e) The progress schedule(s) shall be in the form of progress chart, forms, statements and/or reports as may be approved by the Engineer - in - charge
- (f) The approval of the progress schedules by the Engineer - in - charge shall not relieve the Contractor of any of his duties and responsibilities under the contract. The adoption of any modification in the schedule required by the Engineer - in - charge shall not entitle the Contractor to any extra payment.

Date:

**Corporation Engineer
BathindaMunicipal Corporation**

B3:- ADDITIONAL GENERAL CONDITIONS

TAXES AND DUTIES ON INDIGENOUS MATERIAL

1. All charges on account of Octroi, Terminal Entry Tax, Sales Tax, Excise Duty, etc and other duties on indigenous material obtained for the works from any source shall be borne by the contractor (subject to provisions made in the tender). As per the amendment of Sales Tax Act which came into force from Aug. 1985, Sales Tax on Works Contracts shall be paid by the Contractor and no reimbursement will be made by the Municipal Corporation for the same.

2. RATES FOR EXTRA ITEM

In case of any circumstances contractor shall responsible for executing any extra item as directed by engineer in charge. Rate of the extra item shall be as per general guideline in the condition of the contract and general rules in the R & B department.

3. FINANCIAL BID

Financial bid should not contain any condition or enclosures except the quoted % rates and the total amount for the work.

4. BILLS TO BE SUBMITTED MONTHLY

For the works costing above Rs. 10,00,000. Payment will be made once in month. However, another payment will be made as desired by contractor and as agreed by BMC.

5. CHILD LABOUR

The contractor shall not employ any child below 14 years of age. It is prohibited by Child Labour Prohibition and Regulation Act. 1986. Honorable Supreme Court has given guidelines and as per those guidelines, if child labour is employed on the work site, the contractor shall have to deposit Rs. 20000 (Rupees Twenty Thousand Only) in the child labour welfare fund. If the contractor refuses to deposit this sum, then the action will be taken for contempt of Supreme Court Judgement and also will be Prosecuted by the concerned authority. In case of provision of Child Labour

Prohibition and Regulation Act,1986 by the contractor and to that Municipal Corporation shall recover the amount from the contractor.

I / We hereby do certify that I/We have taken the above “Additional General & Technical Conditions” into account while bidding and have quoted our firm price accordingly.

Seal and Signature of the Bidder

Date:

**Corporation Engineer
Bathinda Municipal Corporation**

BATHINDA MUNICIPAL CORPORATION

Section C

A: FORM OF BID

(The Appendix forms part of the Bid. Bidders are required to fill up all the blanks in the form of Bid)

Name of the contract: Removing debris / silt from existing storm water drain pipeline by super sucker machine in baherampura ward of southze

To,

Municipal Commissioner
BATHINDA Municipal
CorporationBATHINDA,
Gujarat

Dear Sir,

1. Having examined the Conditions of Contract, Specifications, Bill of Quantities, No.for the execution of the above named works, we, the undersigned, offer to execute and complete such works and remedy any defects therein in conformity with the Conditions of Contract, Specifications, Bill of Quantities, for the sum of Rs ____ (Rupees_____)

My/our offer works out as under: Amount put to tender _____ Amount put to tender Rs. _____ Add % above Deduct _____ % below

%(in words)_____ %(in words) _____

Net Amount Net Amount

In figure: Rs. _____ In figure: Rs. _____

2. We acknowledge that the Appendix to Bid forms part of our Bid.
3. We undertake, if our Bid is accepted, to commence the Works on Site within the period stated in the Appendix to Bid hereto after receipt of an order of the Engineer's notice to commence, and to complete and deliver the sections and the whole of the Works comprised in the Contract within the period stated in the Appendix to Bid hereto.

5. We agree to abide by this Bid for the period of one hundred and twenty (120) days after the date of bid opening, and it shall remain binding upon us and may be accepted at any time before the expiry of that period.
6. Unless and until a formal Agreement is prepared and executed, this Bid, together with your written acceptance thereof, shall constitute a binding contract between us.
7. We understand that you are not bound to accept the lowest or any Bid you may receive.
8. All the partners of our Joint Venture are legally and severally bound by this Bid 1.
9. Municipal Commissioner, Bhatinda has right to reject any or all bids without giving any reason.

Dated this day of _____ 2006

Signature _____

in the capacity of _____ duly authorised² to sign Bid for and on behalf of

Address (in block capitals)

Name of Witness

Occupation of the Witness

Address of Witness

Signature of

Witness

1. To be deleted if the bidder is not a joint venture.
2. Certified copy of Power of Attorney/Authorisation for signature shall be furnished by the Bidder in accordance with Clause 20 of Instruction to Bidders (Section I).

Detailed Technical Specifications

Section D

D1:- SAFETY PROVISIONS

7. Suitable scaffolds shall be provided for workmen for all that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 ($\frac{1}{4}$ horizontal and 1 vertical).
8. Scaffolding or staging more than 3.25 metres above the ground or floor, swung or suspended from an overhead support, or erected with stationery support, shall have a guard rail properly attached, bolted, braced, and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying form the building or structure.
9. Working platforms, gangways, and stairways shall be so constructed that they do not sag unduly or unequally, and if height of a platform or gangway or stairway is more than 3.25 metres above ground level or floor level, it shall be closely boarded, have adequate width and be suitably fenced as described in 2 above.
10. Every opening in floor of a building or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of 1 metre.
11. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 3 metres in length. Width between side rails in a rung ladder shall in no case be less than 30 cm for ladder upto and including 3 metres in length. For longer ladders, this width shall be increased by at least 6 mm for each additional 30 cm of length. Uniform step spacing shall not exceed 30 cm.
12. Adequate precautions shall be taken to prevent danger from electrical equipment. No material on any of the sites shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor shall provide all necessary fencing and lights to protect public from accidents and shall be bound to bear expenses of defense of every suit, action or other proceedings at law that may brought by any person for injury sustained owing to neglect of the above precautions and to pay all damages and costs which may be awarded in any suit, action or proceedings to any such person or which may with the consent of the Corporation be paid to compromise any claim by any such person.
13. Excavation and Trenching : All trenches, 1.5 metres or more in depth, shall at all time be supplied with at least one ladder for each 30 metres in length or fraction thereof. Ladder shall be extended from bottom of trench to at least 1 metre above surface of the ground. Sides of a trench which is 1.5 metres or more in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid

the danger of sides collapsing. Excavated material shall not be placed within 1.5 metres of edge of trench or half of depth of trench, whichever is more. Cutting shall be done from top to bottom. Under no circumstance shall undermining or undercutting be done.

14. Demolition : Before any demolition work is commenced and also during the process of the work :
 - (a) All roads and open area adjacent to the work site shall either be closed or suitably protected.
 - (b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by operator shall remain electrically charged.
 - (c) All practical steps shall be taken to prevent danger to persons employed, from risk of fire or explosion, or flooding. No floor, roof, or other part of a building shall be so overloaded with debris or materials as to render it unsafe.
15. All necessary personal safety equipment as considered adequate by the Engineer shall be available for use of persons employed on the site and maintained in a condition suitable for immediate use, and the Contractor shall take adequate steps to ensure proper use of equipment by those concerned.
 - (a) Workers employed on mixing asphaltic materials, cement and lime mortars/concrete shall be provided with protective footwear, hand gloves and goggles.
 - (b) Those engaged in handling any material, which is injurious to eyes, should be provided with protective goggles.
 - (c) Those engaged in welding works shall be provided with welder's protective eye-shields.
 - (d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
 - (e) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that manhole covers are opened and manholes are ventilated at least for an hour before workers are allowed to get into them. Manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to public.
 - (f) The Contractor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the ages of 18 are employed on the work of lead painting, the following precautions shall be taken:
 - (g) No paint containing lead or lead products shall be used except in the form of paste or ready-made paint.
 - (h) Suitable facemasks shall be supplied for use by workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scraped.
 - (i) Overalls shall be supplied by the Contractor to workmen and adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
16. When work is done near any place where there is a risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision made for prompt firstaid treatment of all injuries likely to be sustained during the course of the work.

17. Use of hoisting machines and tackle including their attachments, anchorage, and supports shall conform to the following :
- (i) These shall be of good mechanical construction, sound material and adequate strength and free from patent defects and shall be kept in good repair and in good working order.
 - (ii) Every rope used in hoisting or lowering materials or as a means of suspension shall be durable quality and adequate strength, and free from patent defects.
- 11.1 Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffold winch or give signals to operator.
- 11.2 In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated.. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond safe working load except for the purpose of testing.
- 11.3 In case of departmental machine, safe working load shall be notified by the Engineer. As regards Contractor's machine, the Contractor shall notify safe working load of each machine to the Engineer whenever he brings it to site of work and get it verified by the Engineer.
18. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards, hoisting appliances shall be provided with such means as will reduce to the minimum risk of accidental descent of load adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel such as gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.
19. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in a safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.
20. These safety provisions shall be brought to the notice of all concerned by display on a notice board at a prominent place at the work spot. Persons responsible for ensuring compliance with the Safety Provisions shall be named therein by the Contractor.
21. To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the Contractor shall be open to inspection by the Engineer or his representative and the Inspecting Officers.
22. Notwithstanding the above provisions 1 to 15, the Contractor is not exempted from the operation of any other Act or Rule in force.

23. Contractor shall fully responsible to provide safety measure / equipments necessary for breaking the dummies constructed to plug the pipe inlet and outlet in the manhole to avoid any accident.

Note: - Contractor Shall follows the directions furnished by honorable Gujarat High court as well as Supreme court and directives framed by Guj. Govt. related to de-silting the sewerage pipe line & manholes. He shall take care of not lowering labour in the manhole as well pipeline during the work. He shall fully responsible for any accident if occurred during the work / contract period.

Signature of Contractor

Name :

Company's seal :

Date :

Corporation Engineer

Bathinda Municipal Corporation

Date :

D2:- SAFE ENTRY AND WORKING IN SEWER LINES – GUIDELINES

SAFE WORK PRACTICE PRINCIPLES

1. Introduction

These general guidelines are intended to assist the Contractor in the development of safe work practices. Where the risk assessment indicates that a particular hazard cannot be present, the precautions to control that hazard do not apply. Remember that a favorable history does not guarantee absence of hazard on this occasion.

2. Confined Space

“Confined Space”, in relation to a place of work, means a space of any volume which a person may at any time enter or be allowed to be entered in which the atmosphere is liable at any time to be oxygen deficient. This includes but not limited to pipes, sewers, manholes, tunnels, shafts, ducts, other similar sewerage installations and etc.

The Contractor shall develop acceptable work practices and safe entry procedures based on the guidelines provided hereunder and the BMC¹'s safety code on safety precautions to be observed during sewer desilting / lining work.

3. Notification to Work in Confined Space

The Contractor shall obtain an entry permit from the Engineer for each occupancy of any confined space. The Contractor shall furnish all required details in an approved format to the Engineer for permission to work in confined space at least 24 hours prior to the entry. Where prolonged work is involved, the permit must be renewed for each shift. An incident, which substantially alters the condition of a confined space entry, requires immediate evacuation and reassessment of the condition.

4. Air Quality and Ventilation

Contaminant control and effective ventilation are major factors influencing air quality in a confined space. The ventilation must be adequate to clear pre-existing contaminated air and maintain a respirable atmosphere during planned work. This ventilation may be permanently installed or portable equipment used for this task. For general ventilation, fresh air should be supplied to the workplace. Within the sewer system this creates an environment, which displaces contaminated air in the immediate vicinity.

Where a task generates atmospheric contaminants in a specific area e.g. use of chemical such as polyester resin, adequate local exhaust ventilation should be used to remove the contaminants. Where failure of the mechanical ventilation system would result in deterioration of air quality, the controls must be clearly tagged to prevent accidental interference and the ventilation system monitored while the confined space is occupied. Self-Rescuers must be carried whenever failure of the ventilation system or changes in the working environment can create a contaminated atmosphere. The self-rescuer can be a self-contained breathing apparatus, oxygen self-rescuer, or short duration self-contained

breathing apparatus, depending on the time taken to reach open air.

Note: Obtain occupational hygiene advice on the selection or performance of ventilation system where this is not specified in the work practice or plant design.

5. Lighting

Any regularly accessed confined space should be illuminated to AS 1680 or equivalent with electrical installation to AS 3000 or equivalent. Portable lighting may be used to supplement permanent lighting in the workplace. Temporary mains powered lighting installed for a task must comply with the requirements of AS 2865 or equivalent Indian Standards. Miners lamps, mounted on a safety helmet may be used as an alternative to a hand held torch for personal illumination.

Unless portable lighting complies with AS 2380.7 or similar Indian Standard the possibility of a flammable atmosphere must be eliminated by isolation, cleaning, ventilation purging etc.

Where the confined space has been proclaimed as a flammable gas hazard area to AS 2430 or similar standard all fixed and temporary electrical installation must comply with AS 2381 or equivalent standard. Torches and portable lights must comply with AS 2380.7 or equivalent standard.

Illumination standards are: -

General Lighting: - 40 lux minimum, equivalent to a poorly lit room
Stairway Lighting: - 80 lux minimum

Task Lighting :- 240 lux minimum (normal workshop requirements)

6. Equipment usage, Standards and Maintenance

All confined space safety equipment as proposed in this tender documents shall also meet the established international labour safety standards and be of appropriate designed capacity for the proposed usage at sites. The equipment must be checked for visible damage and correct operation before each use. Preventative maintenance must be performed by trained, and where necessary, authorized persons at the intervals recommended by the equipment manufacturers. The Contractor shall submit to the Engineer evidence of such periodic check and maintenance of the equipment used for confined space entry at every first week of the month.

7. Room to Work

When the constricted volume of a worksite prevents normal work postures and tool movement, the need for special tools or frequent work rotation should be considered.

8. Control of Flooding When a confined space is normally liquid filled, accidental return to service must

be prevented by double isolation e.g. insertion of suitable blanking piece, plugging with inflatable plugs, temporary coffer dams as a second isolation in a manhole or other effective means.

9. Flow Control

Where a sewer is entered while flowing, rapid increase in flow must be prevented by use of stop logs, isolation of pumping stations, weather watch and other means appropriate to the sewer catchments. Adequate communication with the person responsible for flow diversion must be maintained for the duration of the entry.

10. Drowning

Where deep flowing water is present, use personal flotation devices. Safety harness and lifeline and safety nets as appropriate to prevent drowning and washing away.

11. Fire and Explosion

Adequate precautions must be taken to minimize the risk of fire or explosion when entering a confined space for any purpose.

Full safety precautions to be followed during opening of Manholes.

12. Presence of Flammable Gas

The presence of flammable gas, flammable dust or the possibility of the presence of airborne substances in flammable quantities may create a hazardous Area. Care shall be taken by the authorized person to determine the presence of any such flammable situation in the confined space before entry. Smoking or lighting any cigarette or box matches in confined space shall be strictly prohibited. The flammable gases of concern are methane, digester gas, vapours from flammable liquid, and vapours from trade waste discharges.

13. Manual Handling of Tools, etc.

Safe system of work should be followed to protect against falls of persons or objects and crush by moving or falling objects.

14. Noise

Reverberation within a confined space can increase noise levels, especially if more than one person is working. Heavy duty hearing protection may be required.

15. Vermin / Leptospirosis

All persons working in confined spaces should be aware of the leptospirosis hazard presented by the presence of vermin. The presence of cockroaches etc. does NOT indicate that the atmosphere is free of danger to health.

16. Standby and Communication

A member of the confined space work team is allocated the task of maintaining communication with the members inside the confined spaces. This task may be rotated among the members of the team. The Standby person must be trained and be physically capable of providing the assistance and life support in an emergency and must have sufficient proficiency in Hindi, English, Urdu and

Punjabi languages to promptly communicate information by radio or telephone when required.

While acting as stand-by, this person must not enter the confined space or leave the vicinity unless relieved from this duty. A standby person is needed for all confined space entries. The Safe System of Work must indicate the process for communication from the confined space to the standby e.g. 2 way radio "man down" alarm line of sight etc.

17. Fitness Assessment

An assessment of fitness, including cardiovascular and respiratory health, is required to ensure that all persons entering confined spaces, or acting as the stand-by person, can comply with the physical demands of the job, without risk to their health.

18. Emergency Rescue and First Aid

No person shall enter any confined space, even in an emergency, without first ensuring all safety requirements have been met. A safety emergency plan may assist in a safe, speedy response in the event of an emergency.

All confined space work teams must be trained and equipped to sustain life and be able to summon emergency help, provide first aid and assist emergency service personnel, if requested.

Trained persons using supplied air breathing apparatus must only attempt rescue of persons apparently overcome by toxic gases in a sewer or other confined spaces. Stabilization of other injuries must be prioritized against the availability of breathable air.

19. Gas Detector

The Contractor shall engage an authorized person for gas monitoring and detection. This person shall be trained to operate and response test gas testing equipment and is authorized by management to perform the necessary tests to decide whether a category 2 or 3 confined space is fit to enter.

Gas testing can only be performed by persons trained in gas testing, using equipment appropriate for the anticipated contaminants. This person can perform other duties provided these do not conflict with the gas-testing task.

20. Specialist Gas Detector

This person has technical qualifications and acceptable training to operate and response test gas testing equipment, including hydrocarbon detectors and detector tubes and assesses portable ventilation systems. He is authorized by management to carry out atmospheric testing to establish entry conditions for all confined space categories, and to establish whether a Category 1 confined space can be re-classified to a Category 2. He also performs tests to verify whether hot work is permitted in gas hazard areas.

21. Cleaning

Where possible, cleaning should be performed without entry to the confined space, even if only preliminary cleaning is possible. Particular attention should be given to the probability of releasing hydrogen sulphide when disturbing microbial active sludge and sediments, which have accumulated in a confined space. Supplied air respiratory protection shall be

worn where such residues exist and effective ventilation cannot be guaranteed. Continuous gas monitoring is required even when supplied air respirator protection is used.

Hose couplings should be designed to resist accidental dislodging or loosening. Both the operators and the standby person should be able to stop the flow of cleaning material into the confined space.

Hydro jetting must be performed according to the relevant regulations. Where chemical compound is used in within the confined space, the chemical compound should be classed in the Material Safety Data Sheets as non-irritant to respiratory system, eyes and skin. If this is not possible then appropriate respirator skin and eye protection must be worn. Substance specific air monitoring may be required.

22. Visitors

A visitor to a confined space is a person other than a contractor, who is not a member of the Confined Space Work team. Visitors must be escorted and trained or inducted in the necessary skills for that entry and shall sign an indemnity form before entry into a confined space. No visitor shall be allowed to enter the confined space without prior permission of Engineer.

23. Hazard Control

Hazards to be identified and controlled include but are not limited to access mechanical and electrical isolation, flow isolation and control, drowning and engulfment, last known contents, atmospheric contaminants, temperature extremes, security and public access.

24. Air Quality Standard For Entry

The acceptable limits of some gases in confined spaces are:

Gas/Vapor Present	Acceptable Limits
a. Oxygen Content (o)	19.5% to 23.5% by volume
b. Flammable Gas/Vapor	5% of Lower Explosive Level (LEL)
c. Hydrogen Sulphide (H ₂ S)	5 ppm
d. Carbon Monoxide (CO)	10 ppm

25. Carbon Monoxide (CO)

Carbon monoxide is colorless, odorless, flammable and toxic. Its common sources are fire, motor vehicle exhausts and cigarette smoke.

This gas is a chemical asphyxiant and is readily absorbed by the hemoglobin in the blood. Then hemoglobin is unable to transport oxygen to the body tissues and the body becomes oxygen starved. These effects are more pronounced with hard work or for heavy smokers. Symptoms include headache (50-200ppm), nausea (400ppm), irregular heartbeat (1200ppm). Collapse and death (2000ppm).

The entry permit limit is 10 Parts Per Million (ppm). Maximum with an IDLH value of 1500 ppm. (IDLH-Immediately Dangerous to Life and Health)

Note: Some gas detecting machine sensors are cross sensitive, H₂S being detected by the CO cell and vice versa. Alarm by either sensor requires evacuation and re-evaluation of the safe system of work.

26. Flammable Gas/Vapor

A gas or vapor that will burn when mixed with air in certain proportions and ignited.

The mixture, which contains the least amount of flammable gases that will explode, is called the Lower Explosive Limit (LEL). The mixture, which contains

just enough Oxygen to let the flammable gas explode, is called the Upper Explosive Limit (UEL). The flammable range varies for gases and vapors. Many of these have toxic effects when inhaled and a Workplace Exposure Standard has been issued to protect workers from these Gas/Vapor. The Contractor shall obtain relevant Workplace Exposure Standard (WES) for use in the site.

Gas / Vapour	Flammable Range in %	5% LEL (FOR ENTRY PERMIT)	WES
Butane	1.9 – 8.5	950 ppm	800 ppm
n-Hexane	1.2 – 6.9	600 ppm	50 ppm
Methane	5 – 15	2500 ppm	Axphyxiant
Petrol	1.3 – 6	650 ppm	900mg/cu m
Trichloroethylene	12.5 – 90	6259 ppm	50 ppm

27. Hydrogen Sulphide (H₂S)

Hydrogen Sulphide is a colourless, toxic and flammable gas, which usually has the odour of rotten eggs. In sewerage systems it is usually derived from the action of bacteria on the sulphur compounds in anaerobic or old sewage. A small amount of sludge or slime in wet wells or sewers will release a lot of H₂S when disturbed.

After a few minutes exposure, the ability to smell hydrogen sulphide by a person is lost and then hydrogen sulphide becomes more dangerous as its presence is no longer obvious and the person could become an innocent victim.

It can sometimes be detected by odour at less than 0.1 ppm but can be readily detected by odour at 4 ppm. More serious health effects include eye irritation (10 ppm), respiratory irritation (50 ppm), headache, nausea, dizziness (200 ppm), collapse and death (700 ppm).

The entry permit limits is 5 parts Per Million (ppm), Maximum with an Immediately Dangerous to Life and Health (IDLH) value of 300 ppm.

Note :

Some gas detecting machine sensors are cross sensitive, H₂S being detected by the CO cell and vice versa. Alarm by either sensor requires evacuation and re-evaluation of the safe system of work.

28. Methane (CH₄)

The most common flammable gas found in sewers is methane. This mainly comes from gas pipe leaks in the city's gas distribution system. It can also be derived from the action of anaerobic bacteria on rotting material. However a range of other flammable gases and vapours may be encountered. These include LPG, petrol vapour and other solvents.

Digester gas, found in anaerobic sludge digesters on sewage treatment plants is a flammable mixture of methane nitrogen and carbon dioxide.

Methane is a colourless, odourless gas. Although pure methane is slightly lighter than air the relative density of methane / air mixture is similar to air entry permit range. Methane is hazardous because of its flammability, i.e. between concentrations of 5% to 15% in air, it may explode if an ignition source is present.

High concentrations of methane may result in oxygen deficiency. Injury or death result from lack of oxygen not methane toxicity classifying methane as a simple asphyxiant.

29. Oxygen Content (O₂)

Fresh air contains 20.9% oxygen, equivalent to a partial pressure of 211.8 hectopascal of oxygen at sea level.

The readings obtained on a gas detection instrument in open air may vary depending on instrument calibration and barometric pressure.

In a confined space, oxygen can be used up by bacteria in sewage or sludge, rusting of iron fittings, burning (or welding) or displaced (pushed out) by other gases.

Breathing of air, which contains reduced oxygen results in increasingly serious health effects. These range from impaired coordination and faulty judgment (12-16% O₂) to collapse and rapid death (less 6% O₂).

Increased oxygen readings can only come from instrument error or by leakage from oxygen cylinders, liquid oxygen tank, etc. High oxygen levels greatly increase fire hazards, fires burn fiercely; oily clothing and hair can catch fire without an ignition source.

The entry permit levels are 19.5% to 23.5% by volume.

30. Definition

Parts per million (ppm)

Parts of gas or vapour per million parts of contaminated air by volume at 20⁰C and 1 bar pressure.

$$1 \text{ ppm} = 0.00001\%$$

Percentage

Parts of substance per 100 parts of air, water
etc. 1% = 10,000 P

31. Other Atmospheric Contaminants

Entry, unless wearing air supplies breathing apparatus is not permitted unless atmosphere contaminants are below the relevant 8-hour time weighted average (TWA) Workplace Exposure Standard. This limit applies for all entries including brief exposures. Entry wearing breathing apparatus is only permitted where the concentration of the contaminant is within the protection factor of the breathing apparatus and below the IDLH (Immediately Dangerous to Life and Health) value.

32. Sewer Gases

Air in contact with live sewage contains gases released from the sewer. For safe entry, contaminated air must be replaced with clean air by ventilation of the confined space. The resulting atmosphere must be confirmed by gas testing. Discharge of untreated wastes, e.g. hypo chlorites, electroplating effluent, acids may result in generation of chlorine, hydrogen cyanide and other harmful gases some distance from the original discharge.

33. Confined Space Categorization

The confined space category is a guide to developing a safe system of work. The confined space category may change to a more stringent level as a result of

adverse environmental factors or work produces contaminants. Alternatively it may change to a less restrictive category if appropriate engineering upgrades, whether temporary or permanent, are implemented.

1.1 Category 1 – Confined Space

Entry allowed only if flammable gas is below 5% of L.E.L. and other gases are within the protection factor of the respiratory protective equipment used. Visibility must be adequate

Personal Safety

- o Wear specified protective clothing for the hazards.
- o Wear safety harness.
- o Use lifeline where appropriate.

Respiratory Protection

- o Test air quality prior to entry by a Specialist Gas Detector.
- o Ventilate to reduce contamination.
- o Monitor air quality as directed by the Specialist Gas Director.
- o Wear airline breathing apparatus with backup air supply OR wear self-contained breathing.

Note: An Oxygen self-rescuer is not a backup for an airline used in contaminated atmospheres,

If the Category 1 confined space is a chemical storage tank, it can be reclassified to a Category 2 or 3-confined space when the specialist gas detector confirms that the chemical has been cleared from the interior.

Sewer, wet wells etc can be reclassified by a specialist gas detector to a lesser confined space only when an approved safe system of work is employed. This safe system of work must provide for demonstrated control of airborne contaminants and other hazards in the workplace, to provide conditions equivalent to a Category 2.

Hot work requires control of fire and explosion hazards and may require air supplied breathing apparatus to control fumes irrespective of the confined space category. A Hot work permit is required in addition to the normal entry permit.

1.2 Category 2 – Confined Space

Entry allowed only if all gases are within entry permit limits. Personal Safety

- o Wear specified protective clothing for the hazards.
- o Wear safety harness.
- o Use lifeline where appropriate.

Respiratory Protection

- o Test air quality prior to entry
- o If air quality test fails, refuse entry until reason found and rectified, or revert to Category 1 entry conditions.
- o Ensure adequate ventilation
- o Monitor air quality during entry.
- o Carry oxygen self rescuer

Note: Standby person must have SCBA readily available.

Hot work requires control of fire and explosion hazards and may require air supplied breathing apparatus to control fumes irrespective of the confined space category. A Hot work permit is required in addition to the normal entry permit. A hydrocarbon check by a “specialist gas detector” is required unless the environment can be upgraded to Category 3 conditions

1.3 Category 3 – Confined Space

Entry permit required (unless using a posted entry procedure for routine operation of the facility) for each shift that the structure be occupied. **Person Safety**

- ❖ Wear protective clothing specified for the hazards.

Respiratory Protection

- ❖ Test air quality prior to entry
- ❖ If the proposed work can generate airborne contaminants, arrange ventilation. Respiratory protection and / or air quality monitoring as appropriate.

Hot work required hot work permit and control of fumes.

If air quality test fails, revert to Category 1 entry conditions or refuel entry until reasons found and rectified.

1.4 Category 4 – Confined Space

Follow facility safety procedures.

Person Safety

- ❖ Wear protective clothing specified for the hazards

Respiratory Protection

- ❖ Evacuate when alarms advise

Hot work requires control of fumes.

Separate Permit(s) required for chemical cleaning and / or hot work. If evacuation alarm sounds, evacuate following site emergency procedure. Reoccupy as a Category 2 confined space.

Generic Entry Summary

	Category 1	Category 2	Category 3	Category 4
Entry Permit	Yes	Yes	Yes	Yes
Standby Person	Yes	Yes	Yes*	*
Communication to remote standby		Yes*		
Protective Clothing	Yes*	Yes*	Yes*	Yes*
Safety Harness	Yes	Yes		
Lifeline/Fall arrester	Yes	Yes		
SCBA	Yes*	#		
Airline and backup	Yes*			
OSR	Yes*	Yes*		
Specialist gas tester	Yes			
Gas tester		Yes	Yes	Yes
Gas monitoring	Yes	Yes		
Ventilation	Yes*	Yes*	Yes	Yes

*Appropriate choice given in Safe Work practice for the task

Required by Standby Person

34. Entry Permit Format

A general entry permit for working in sewerage works is given below as an example. The contractor shall develop his own format of the entry permit form and submit it for the approval of Engineer.

35. Maintenance of Equipment

This equipment must be maintained as per manufacturer's recommendation and records kept of this maintenance.

Compressed air bottles must be refilled by a source, which warrants that the air meets quality standards of AS1715 or equivalent.

Air from air compressors must be treated to meet quality standards of AS1716 and tested periodically to demonstrate compliance.

All respiratory protection system must be used in accordance with AS1715.

36. Gas Detecting Machines

The instrument must be operated according to the manufacturer's instructions. The instrument must be checked for correct functioning using a test gas ('Response Check') every day when the instrument is used to check possibly contaminated atmospheres.

If the instrument is used less frequently, it can be response checked each time it is used.

37. Standards

The following equipment must meet the relevant section of AS1716 or any equivalent standard

- A. Self contained breathing apparatus.
- B. Oxygen Set (Rescuer).
- C. Airline compressed air breathing apparatus.

All workmen should use all the same-model of this equipment for interchangeability.

Obtain professional advice for selection of airline breathing apparatus and compressed air self-rescuers.

Portable gas detection instruments must meet the following requirements. **Manual of Practice**

Sr.No.	Gas Monitored	Range Required	Resolution Required
1	Oxygen	1% - 30%	Resolution 1%
2	Flammable Gas	1% - 100% of LEL	Resolution 1% of LEL
3	Hydrogen Sulphide	1 – 50 ppm	Resolution 1 ppm
4	Carbon Monoxide	1 – 400 ppm	Resolution 1 ppm

D3:- SAFETY PRECUATIONS TO BE OBSERVED DURING CLEANING, DESLITING .

1. Special Direction to Tenderers

1.1 Precautionary measures to be taken be the contractor for the safety and welfare of the labours connoted with desilting and lining work.

To begin with the work of desilting, initial six consecutive manholes are

to be opened, two on the up-stream and two on the down-stream side of the two manholes, on the actual stretch to be cleaned or desilted. The manholes should be kept open for one hour prior to the starting of cleansing operations and should be so kept open during the whole duration of cleaning operations. This to be done for allowing the combustible gases to escape naturally. No lighted matchsticks should be thrown in the manhole. This may cause fire and explosions endangering the life of the workmen and the pedestrians. This may also damage to the sewer and other adjoining utility services, if any Jalis should be placed over all the opened manholes to prevent pedestrians etc. from falling in. tripod stands with flags it should be written in white bold letters "Danger Manhole Open."

1.2 When working at night, lantern fitted with red globe and lights shall be hung from the tripod stand. Each manhole kept open should be guarded by one labourer or C.I. heavy cover with holes exactly fitting up to the fame and capable of taking the load of lorry should be placed over the manhole, so that top of the cover is flush with the road surface. The contractor without any extra cost shall provide the covers. The same should be removed and replaced with regular manhole cover when the work is closed.

1.3 The contractor should keep sufficient number measurement rods. The measurement rods shall be made out of solid bamboo/M.S. rod of sufficient length fixed with M.S. flat 150 mm X 150 mm X 6 mm (6"X6" and 1/4") thick at one end and fitted with point at other end, to take measurement of water and silt.

1.4 Manholes shall be kept open for minimum one hour to allow foul gases to escape and simultaneously there should be forced purging with the help or an are blower to completely clean the air in the sewer.

1.5 Sewage levels shall be checked in the manholes and the same should not be more then 450 mm (18").

1.6 Wet lead acetate paper shall be inserted in the manholes which should nit turn even light brown or black. If the lead acetate paper turns light brown or

black, then the manhole shows the presence of Hydrogen Sulphide Gas (H₂S) and in that case this test shall be repeated after every ten minutes till positive result is achieved. The sensitivity of lead acetate paper should be ascertained to suit and detect the minimum allowable concentration (MAC) for long-term exposure.

This paper should be held as low as possible in the manhole atmosphere. In spite of long waiting for about one and half hour, if the lead acetate paper continues to show negative gas detector shall be used for half an hour. Thereafter gas detector shall be used to check the presences of gases and the worker shall be allowed only after it is confirmed that the condition inside the manhole is safe for man entry.

Whenever necessary, or where the sewer line is heavily silted or there are chances of gas eruption, the person entering the manhole shall be provided with gas mask or breathing apparatus (respiratory system) and hand blower or mechanical blower be used during the desilting operation. In every case use of gas monitor in working condition is mandatory. In addition to this, the conventional methods like lead acetate paper test [etc. be](#) done. The gas monitors should be accurately calibrated after regular intervals to maintain their reliability.

After the lead acetate paper test, a lighted safety lamp shall be inserted in the manhole, which should burn smoothly. If not, it shows the presence of Carbon monoxide (CO) and in that case precautionary measures as stated in sub-pare (g) should be followed.

After the presence of combustible gases are ruled out the following further tests is required to be carried out for the presence of oxygen.

A lighted naked candle placed at the center of the candle testing equipment covered with glass on three sides should be lowered down slowly. If the flame is extinguished or flickers, it indicates the presence of carbon monoxide and or carbon dioxide. If it burns for not less than five minutes uniformly, it indicates the presence of oxygen, which is required for breathing for the workman working inside the manhole.

2. Working Inside the Manhole

After all these tests are carried out successfully, particular care should be taken where sewer is heavily silted, the scum and sullage should thoroughly be stirred and disturbed by means of long bamboos/ G.I. rod from the top of the manhole to allow entrapped gases within silt pockets to escape before allowing the labourers to go down into the manhole.

The depth of water should be measured and the labourer should be asked to get down when the level of water is less than 450 mm (18"). Before the labourer is allowed to get down inside the manhole, he should be asked to apply barrier creams all over the body as a precautionary measures to safe

guard against itching and burning sensation. Safety belt should be tied around his waist and chest when the labourers are getting down, another man at the top should hold the other end of the rope. Not less than two people should be allowed to work inside the manhole at a time.

If the labourers who are working inside the manhole show slight discomfort, they should be asked to come up or pulled up. The labourers who are working inside the manhole should give jerks every few minutes to signify that everything is okay with them.

After getting satisfactory test result and after taking precautionary measures as stated above, the worker shall be allowed to descend or enter in the manhole. The workers entering the manhole shall be provided with wadder suit, hand gloves protective head gears and head lamp. If the wadder suits are not available the worker shall be provided with Barrier Creams with germicide to be applied to their entire body to prevent harmful effect due to contact with harmful bacteria and germs.

The worker entering the manhole shall wear Harness belt around his waist. In spite of the manhole entry tests being carried out, there are chances of eruption of poisonous gasses in the silt. If the worker finds any difficulty in breathing initially or during the work then he should be taken out immediately by means of harness belt. Where the sewer line is heavily silted or there are chances of gas eruption, gas mask shall be used while entering the manhole and also during desilting.

On completion of the work all manholes shall be checked and it should be ascertained that the same are properly closed.

3. Safety (General)

Proper ventilation shall be maintained in the manhole and sewer line being desilted. Hand operated or mechanical blower should be preferable used for half an hour to one hour before entering the sewer line even after getting the safe working condition, while desilting sewer lines where accumulation of silt is heavy. While the blowers shall be operated continuously during the desilting of sewer lines which are heavily silted or susceptible to gas generation.

While carrying out desisting, the sewer lines of man-entry size, the contractors shall use blower during the entire period. This would not only ensure safe condition but also ensure comfortable working condition for the worker and would in turn increase his performance and output.

In some manhole where sewage is falling over workman or causing obstruction, plugging the upstream sewer will be allowed temporarily without any charges, provided the Contractor ensures that the upstream sewer line does not overflow. The plugs shall be removed immediately after the work has been completed.

The Contractor shall, as far as possible, use mechanical process for cleaning and desilting sewer lines and progressively minimise manual process of desilting so that entry of workers in the sewers for purpose of cleaning and desilting shall be avoided.

A list of various safety tools, overhauls and safety equipment. • Harness Belts

- Overalls
- Thigh Belts
- Hand Gloves
- Protective Head Gear with Lamp
- Breathing apparatus
- Gas Monitors
- Thigh and Wadder Suits
- First Aid Box
- Barrier Creams with Germicides
- Other related safety items, as directed by the Engineer

No worker of Contractor shall be allowed to enter into the manhole for cleaning and desilting the sewer lines unless all the safety tools, shackles and equipment are at site and the worker is equipped with personal safety gear such as gumboot, wadder suit, headgear, head lamp and, harness belt etc.

The Contractor should keep “first aid box at the site of works”.

One vehicle with the safety equipment such as breathing apparatus, diver suit, air blower, escape set etc., shall be made available at each Desilting. The same vehicle shall have other facility such as first aid kit, provision for eye wash.

4. Welfare of the Workman Engaged For Desilting / Lining Works

No person below the age of 18 years shall be employed for carrying out cleaning and desilting work of the sewerage system / sewer lines.

Adequate safety measures shall be taken by the Contractors.

The Contractor should impart training to the supervisory staff, all the workman entrusted with the task of sewer rehabilitation.

A detailed medical checkup of all the workers must be immediately undertaken. This check up should include a full clinical examination, proper blood tests, routine radiological tests, pulmonary functions test, a psychiatric evaluation and other specialized tests wherever necessary. Special emphasis must be given to the

study of the respiratory system, the eyes and the skin problems.

Each worker engaged in cleaning the desilting of the sewer lines / manholes, shall be medically examined once a year and shall not be engaged, if he is

suffering from any of the diseases such as respiratory, skin, eye-problems, infections, cardiovascular, spinal, psychiatric nature etc. He should not be engaged for cleaning and desilting work inside the manhole or sewer lines till he is cured.

Whether a person is suffering from any of the above mentioned diseases or not shall be certified by any Municipal Doctor. Similarly, the contractors engaged in cleaning and desilting operation, shall get their workers, employees medically examined and shall not employ any worker who is found to be suffer from any of the above mentioned ailments.

The workers should be provided with vaccination against certain diseases commonly prevalent among sewage workers due to the nature of their work.

First Aid Box properly stocked including washing bottle to wash skin and eyes, should be kept at the site of work.

Proper arrangement should be made to get treatment expeditiously, including facilities for speedy admission and treatment in any nearby hospital to the work site. Location of the hospital should be displayed at the site of work.

The Contractors engaged by BMC for sewer cleaning desilting and repair work, should take out workmen insurance policy at Contractor's cost (individual or group) for workers engaged by him for sewer cleaning and / or desilting or repairing.

The Contractor shall maintain washing, drinking water and toilet facility at each Chowky. If no toilet is provided in the Chowky, it should be so located that the public toilet is available within a distance of 300 m. The site Chowky should also be equipped with full first aid kit.

Contractor should provide carbolic soap at the rate of one cake for four days for washing clothes that are used by workers. The workers should be asked to take bath after the work is over. In cold seasons i.e. December to February, Contractor should supply sufficient fire wood to workers for warming up after taking the bath.

5. Contractor's Responsibility towards Welfare of the Workmen

A responsibility officer of the supervisory cadre of the Contractor should be physically present at the site and he/she should ensure and document compliance of the guidelines under the scheme for measures of safety and welfare of the workers and entry worthiness in the manhole. He / She should remain physically present throughout the operation and the onus of compliance of these guidelines should lie on.

A log book should be maintained by him/her for giving the date and time, the names of workers, place and other relevant particulars of stay in the

manhole etc. The said official should hold a certificate of training from a Competent Body such as National Safety Council, New Delhi Fire Brigade etc. in First-Aid and Emergency Measures. If the Supervising Officer is not satisfied about the various requirements as specified in the above specification, then the work should be stopped immediately.

List of the Contractor's employees including their residential addresses, age, etc. is required to be supplied by the Contractor in separate register.

If the Contractor has engaged 20 or more labourers, then the Contractor is required to be registered under the Contract Labour Act and Inter-State Migrate Labour Act, wherever applicable.

Contractors should abide by all the rules and regulations in respect of labour laws prescribed by the Government Authorities and submit the returns etc.

The workmen compensation should be paid to the Contractor's employees as per the provisions of Workmen's Compensation Act.

Contractor should maintain a muster of all the labourer working at site and his supervisor should prepare a triplicate copy of the same specifying the persons getting down the manhole. The Contractor shall send one copy to the Engineer and another copy shall be kept in his office for his record. The copy should reach the Engineer on the day before 11 AM without any extra cost.

The Contractor shall also ensure that the silt is transported within 24 hours to the Dumping ground or to the site as directed by the Engineer. If the Contractor fails to remove the silt within 24 hours the same will be removed by the BMC at his risk and cost, after the Contractor has been notified in writing.

The Contractor should not make the silt storage depot etc., near the water gully. If found that the Contractor disregarded the above and caused blockage in the water gully, the BMC will clean the gully at the risk and cost of the Contractor. Contractors shall located depots at places where.

All the silt removed from manholes / chambers near bus stop or junctions should be transported immediately to a place approved by the Engineer at say 100 meters from the manhole, and from where the same shall be transported to the approved dumping yard as soon as possible.

The Contractor should sprinkle sufficient quantity of bleaching powder over the silt removed site to prevent smell emanating from the silt.

No person other than the Contractor's workers should be allowed to go inside the manhole. If it is found that any unauthorized person has entered the manhole and injured or died the Contractor will be solely and fully responsible for the consequences including damages etc. claimed by the

person or his heirs.

Plugging etc., if required to be done for stopping the flow or diverting the flow and pumping out sewage to facilitate removal of the choke or for any other purpose connected with cleaning work should be done by the Contractor without any extra cost.

Even though the Contractor takes all the precautionary measures and by chance any workman is injured or dies due to negligence or otherwise the Contractor will be responsible for the claims of damages by the workman or his heirs.

6. **SAFETY PROVISIONS:-**Suitable scaffolds shall be provided for workmen for all that cannot safely be done from the ground, or from solid construction except such short period work as can be done safely from ladders. When a ladder is used, an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable footholds and handholds shall be provided on the ladder and the ladder shall be given an inclination not steeper than $\frac{1}{4}$ to 1 ($\frac{1}{4}$ horizontal and 1 vertical).
7. Scaffolding or staging more than 3.25 metres above the ground or floor, swung or suspended from an overhead support, or erected with stationery support, shall have a guard rail properly attached, bolted, braced, and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.
8. Working platforms, gangways, and stairways shall be so constructed that they do not sag unduly or unequally, and if height of a platform or gangway or stairway is more than 3.25 metres above ground level or floor level, it shall be closely boarded, have adequate width and be suitably fenced as described in 2 above.
9. Every opening in floor of a building or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of 1 metre.
10. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 3 metres in length. Width between side rails in a rung ladder shall in no case be less than 30 cm for ladder upto and including 3 metres in length. For longer ladders, this width shall be increased by at least 6 mm for each additional 30 cm of length. Uniform step spacing shall not exceed 30 cm.
11. Adequate precautions shall be taken to prevent danger from electrical equipment. No material on any of the sites shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor

shall provide all necessary fencing and lights to protect public from accidents and shall be bound to bear expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay all damages and costs which may be awarded in any suit, action or proceedings to any such person or which may with the consent of the Corporation be paid to compromise any claim by any such person.

12. Excavation and Trenching : All trenches, 1.5 meters or more in depth, shall at all time be supplied with at least one ladder for each 30 meters in length or fraction thereof. Ladder shall be extended from bottom of trench to at least 1 metre above surface of the ground. Sides of a trench which is 1.5 meters or more in depth shall be stepped back to give suitable slope, or securely held by timber bracing, so as to avoid the danger of sides collapsing. Excavated material shall not be placed within 1.5 meters of edge of trench or half of depth of trench, whichever is more. Cutting shall be done from top to bottom. Under no circumstance shall undermining or undercutting be done.
13. Demolition: Before any demolition work is commenced and also during the process of the work:
 - 13.1 All roads and open area adjacent to the work site shall either be closed or suitably protected.
 - 13.2 No electric cable or apparatus which is liable to be a source of Danger over a cable or apparatus used by operator shall remain electrically charged.
 - 13.3 All practical steps shall be taken to prevent danger to persons employed, from risk or fire or explosion, or flooding. No floor, roof, or other part of a building shall be so over-loaded with debris or materials as to render it unsafe.
14. All necessary personal safety equipment as considered adequate by the Engineer shall be available for use of persons employed on the site and maintained in a condition suitable for immediate use, and the Contractor shall take adequate steps to ensure proper use of equipment by those concerned.
15. Workers employed on mixing asphaltic materials, cement and lime mortars/concrete shall be provided with protective footwear, hand gloves and goggles.
16. Those engaged in handling any material, which is injurious to eyes, should be provided with protective goggles.
17. Those engaged in welding works shall be provided with welder's protective eye-shields.
18. Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
19. When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that manhole covers are opened and manholes are ventilated at least for an hour before workers are allowed to get into them.

- Manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to public.
20. The Contractor shall not employ men below the age of 18 and women on the work of painting with products containing lead in any form. Whenever men above the ages of 18 are employed on the work of lead painting, the following precautions shall be taken:
 - 20.1 No paint containing lead or lead products shall be used except in the form of paste or ready-made paint.
 - 20.2 Suitable facemasks shall be supplied for use by workers when paint is applied in the form of spray or a surface having lead paint dry rubbed and scraped.
 - 20.3 Overalls shall be supplied by the Contractor to workmen and adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
 21. When work is done near any place where there is a risk of drowning, all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision made for prompt first aid treatment of all injuries likely to be sustained during the course of the work.
 22. Use of hoisting machines and tackle including their attachments, anchorage, and supports shall conform to the following :
 - 22.1 These shall be of good mechanical construction, sound material and adequate strength and free from patent defects and shall be kept in good repair and in good working order.
 - 22.2 Every rope used in hoisting or lowering materials or as a means of suspension shall be durable quality and adequate strength, and free from patent defects.
 23. Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 21 years shall be in charge of any hoisting machine including any scaffold winch or give signals to operator.
 24. In case of every hoisting machine and of every chain ring hook, shackle, swivel and pulley block used in hoisting or lowering or as means of suspension, safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with safe working load. In case of a hoisting machine having a variable safe working load, each safe working load and the conditions under which it is applicable shall be clearly indicated.. No part of any machine or of any gear referred to above in this paragraph shall be loaded beyond safe working load except for the purpose of testing.
 25. In case of departmental machine, safe working load shall be notified by the Engineer. As regards Contractor's machine, the Contractor shall notify safe working load of each machine to the Engineer whenever he brings it to site of work and get it verified by the Engineer.

26. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards, hoisting appliances shall be provided with such means as will reduce to the minimum risk of accidental descent of load adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energized, insulating mats, wearing apparel such as gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall not wear any rings, watches and carry keys or other materials, which are good conductors of electricity.
27. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in a safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities shall be provided at or near places of work.
28. These safety provisions shall be brought to the notice of all concerned by display on a notice board at a prominent place at the work spot. Persons responsible for ensuring compliance with the Safety Provisions shall be named therein by the Contractor.
29. To ensure effective enforcement of the rules and regulations relating to safety precautions, arrangements made by the Contractor shall be open to inspection by the Engineer or his representative and the Inspecting Officers.
30. Notwithstanding the above provisions 1 to 15, the Contractor is not exempted from the operation of any other Act or Rule in force.
31. Contractor shall fully responsible to provide safety measure / equipments necessary for breaking the dummies constructed to plug the pipe inlet and outlet in the manhole to avoid any accident.

Note: - Contractor Shall follows the directions furnished by Gujarat High court as well as Supreme court related to de-silting the sewerage pipe line & manholes. He shall take care of not lowering labour in the manhole as well pipeline during the work. He shall fully responsible for any accident if occurred during the work / contract period.

Signature of Contractor

Name :

**Corporation Engineer
Bathinda Municipal Corporation**

ITEM :- CLEANING OF SEWER PRIOR TO INSPECTION:

- Sewers to be inspected shall be suitably cleaned by high vacuum suction equipment and by high pressure water jetting to remove all silt, grease and loose materials.
- Where necessary mechanical cleaning tools may be used to scrape off grease and encrustations in the sewer.
- All mass roots, intruding laterals and concrete shall be neatly cut off as required for proper structural lining work.
- Cleaning shall be carried out from the upstream access manhole or chamber to the downstream access manhole or chamber and shall include all operations necessary to remove grease, slime, silt and loose materials from the sewer bore and manhole or chamber. All loosened and inherent silt and grease material in the pipeline shall be prevented from passing downstream by necessary stanking arrangement.

a) INSPECTION OF MANHOLES :

- Inspection of manhole conditions in accordance with WRC / MSCC is will be carried out concurrently during the inspection of sewer.
- Manhole inspection can also carried out manually with data logging of defects and general conditions.
- Provision will be made to provide photographic / video evidence of defects where applicable.

b) BYPASS PUMPING / DIVERSION OF FLOW:

- The main and branch sewers including cross connections are considered flowing full generally in the morning peak hours. The bypass system provided shall be of sufficient capacity to handle the estimated flows on 24 hours basis.
- The bypass pumping/flow diversion arrangement shall be continuously monitored and cleaned or cleared off any obstructions due to the silts / grits with appropriate and quick disposals.
- Every day to ensure that the bypass arrangement is working properly and no overflow of sewage exists.
- The main sewer shall regularly desilt the diverted sewer network to ensure that there is no overflow of sewage occurs at any time.
- Joint inspection of the flow diversion arrangements can be carried out during lean and peak flow periods at least once in a week.

- Flow diversion plan shall be done at site to deploy necessary pumps of suitable capacity as per the site condition.

c) PUMPING FACILITIES:

- x The provision will be made for , operation, maintenance and noise suppression of all over pumping plant, for the provision (including establishment and removal), operation & maintenance of all delivery hose installed and for the period during which bypass pumping work is required ; sinking hoses in trenches; backfilling and reinstating these trenches as required ; placing horizontal and/or ramped metal planting over temporary diversion of the delivery hose either in trench or at the road surface and for routing delivery hoses through other conduits, standing and plugging lateral connections as well as other relevant requirement. The pumping equipment shall be attended to all the time by competent pump operator

ITEM:- TELEVISION INSPECTION OF SEWERS1

GENERAL

1.1 WORK OF THIS SECTION

- 1.1.1 The WORK of this Section includes pre-cleaning, when necessary, and performing a closed circuit television (CCTV) inspection of the indicated reaches of sewers. The minimum diameter of sewer for television inspection shall be 4 inches.
- 1.1.2 The purpose of inspection is to detect and locate defects and document the current condition of the sewer, leading to evaluation and selection of repair methodology by the OWNER.][The purpose of inspection is to inspect and document the physical condition of the sewer after rehabilitation.] [The purpose of inspection is to document the condition of the new sewer.]
- 1.1.3 The CONTRACTOR is cautioned that sewage will continue to flow to the sewers and that the WORK must be performed under permit required for confined space entry conditions.

1.2 SHOP DRAWINGS AND STANDARDS

The following shall be submitted in compliance with Section 01300.

1. CCTV equipment operational manual.
2. Location where debris from cleaning sewers will be disposed.
3. Schedule for cleaning and inspecting each sewer reach. **1.3**

EXECUTION

1.3.1 DIVERSION PUMPING

The CONTRACTOR shall install and operate sewage diversion pumping equipment to maintain sewage flows without backup, overflow or spill.

1.3.2 CLEANING

The CONTRACTOR shall select the cleaning equipment and method for cleaning based on the age, the material, and the probable condition of the sewer. More than one type of equipment or attachments may be required on a single reach or at a single location. The CONTRACTOR shall not damage the sewer or any manhole during cleaning.

When requested by the CONSTRUCTION MANAGER, the CONTRACTOR shall demonstrate the performance capabilities of the cleaning equipment and method proposed for use. If results obtained by the demonstration are not satisfactory, the CONTRACTOR shall select other methods or equipment that will clean the sewer line, and shall perform another demonstration.

For water pressure cleaning equipment, the CONTRACTOR shall install a gauge to monitor working pressure on the discharge of high-pressure water pumps.

The CONTRACTOR shall remove dirt, debris, and grease from the entire circumference of the sewer between manholes.

Acceptance of sewer cleaning work is contingent upon the successful completion of the television inspection. If television inspection shows debris, solids, sand, grease, or grit remaining in the line, the cleaning will be considered unsatisfactory, and the CONTRACTOR shall repeat cleaning and televising of the sewer line at no increased cost to the OWNER until cleaning is acceptable to BMC

3.0 CONSTRUCTION MANAGER

A The CONTRACTOR shall remove sludge, dirt, sand, rocks, grease, roots, and other solid or semisolid material resulting from the cleaning operation at the downstream manhole of the section being cleaned. A suitable sand trap, weir, dam, or suction in the next downstream manhole shall be installed so that solids and debris are trapped for removal. Passing debris from one sewer section to any other sewer section shall not be allowed. Debris from the manholes shall be loaded into a leak proof, enclosed container that is permitted by applicable regulations for liquid waste hauling. All solids or semi-solid wastes shall be removed from the Site at the end of each work day. Debris, liquid waste, or sludge shall not accumulate at the Site.

B The CONTRACTOR shall dispose of waste using a licensed waste transporter to a location licensed for the type of waste involved.

4.0 TELEVISIONING A.

CCTV Equipment

1. The camera system shall include a pan-and-tilt, radial viewing, pipe inspection camera that pans plus or minus 275 degrees and rotates 360 degrees with

zooming capability. The CONTRACTOR shall use a camera with an accurate footage counter which displays, on the operator's monitor and the videotape, the distance of the camera from the centreline of the starting manhole. The CONTRACTOR shall use a camera with height adjustment so that the camera lens is always cantered at one-half the inside diameter, or higher, in the pipe being televised. The CONTRACTOR shall provide a lighting system that allows the features and condition of the pipe to be clearly seen. A reflector in front of the camera may be required to enhance lighting in large diameter pipe. The camera system shall be controlled from the operator's truck.

2. Recording shall be on a 4-head VHS format VCR recorded at standard play mode in color.
 - b. Only segments between manholes on the same sewer reach shall be included on one videotape.
 - c. Two permanent labels are required. One label shall be placed on the spine and the other on the face of the videotape.
 - d. Cassette spine information
 - (1) CONTRACTOR NAME
 - (2) Project Name
 - (3) Tape Number
 - (4) Date Televised
 - (5) Date Submitted
 - e. Cassette face information
 - (1) Name of street
 - (2) From Manhole Number and VCR counter number
 - (3) To Manhole Number and VCR counter number
 - (4) Pipe Length and Size
 - (5) Project Name
 - (6) Tape Number
 - f. For each cassette the CONTRACTOR shall prepare a TV Inspection Report which shall be a complete written log of pipe conditions [and connections], indexed to the footage counter.

B. Inspection

1. The CONTRACTOR shall televise the sewer immediately after cleaning. It shall notify the CONSTRUCTION MANAGER 24 hours in advance of TV inspection so that the CONSTRUCTION MANAGER may observe inspection operations.

2. In addition, the CONTRACTOR shall clean all associated sewer manholes, and shall pan the camera to document the conditions of manholes. Camera operator shall slowly inspect each connection and sewer transitions from one pipe material to another.
3. Sewage flow during television inspection shall not be deeper than: Nominal Diameter
Depth as Percent of Inches Inside Diameter

6 - 10 10

12 - 24 15

Greater than 24 20

If the flow exceeds the depth limit, the CONTRACTOR shall either perform the inspection during minimum flow times, pump or otherwise divert some flow, or use a camera with provisions for high velocity jet flushing.]

4. The CONTRACTOR shall move the camera downstream at a uniform rate not greater than 30 feet per minute. The CONTRACTOR shall stop and thoroughly inspect each of the following:
 - a. Collapsed pipe, obstructions
 - b. Structural cracking, with and without deflection
 - c. Missing portion of wall
 - d. Sag, excessively deflected joint
 - e. Cracked and open joints
 - f. Root intrusion
 - g. Protruding joint sealing material
 - h. Corrosion conditions, including exposed aggregate, exposed reinforcement, and disintegrated wall which exposes the soil surrounding the pipe.
 - i. Missing, damaged, bulging PVC sheet lining.
 - j. Protruding lateral joint
 - k. Inflow point]
5. The camera operator shall log on a suitable form his/her observations in the inspection of the above items.
6. If the camera is unable to pass an obstruction even though flow is unobstructed, the CONTRACTOR shall also approach the obstruction from the other direction in order to obtain complete video on both sides of the obstruction. The CONTRACTOR shall notify the CONSTRUCTION MANAGER whenever such an obstruction is encountered. The CONSTRUCTION MANAGER will determine if the obstruction must be removed.

D3:- Additional Conditions For Particular Work

1. Contractor shall work of cleaning the manhole as well as Pipe section with the use of machinery and all necessary instruments. Contractor shall work outside of the manhole and nobody shall work inside of the manhole in any occasion. If he will have to put any labour in manhole he shall make following necessary arrangement
 - A. Contractor shall keep both end of pipe in the manhole open if there will be any labour work in the manhole. He has to suck the foul gases from the manhole as well as pipe and blow the fresh air in the manhole as well as pipe section.
 - B. Contractor shall protect / Barricade the working site if any cover of manhole will be open for the work. He shall put the caution board around the Opened Manhole.
 - C. Contractor shall keep the manhole opened without any body in the manhole & blow the air as well as fresh water in the manhole check whether the gas has been removed from the manhole and then after he shall allow for labour in the manhole.
 - D. Contractor shall put the Gas detector in the manhole as well as put the lightened candle in the manhole so that Oxygen gas can be checked in the manhole.
 - E. Contractor shall put the alarm system in the manhole.
 - F. Any labour shall lower down in the manhole with the safety belt, Mask, Oxygen Cylinder, First Aid Box and contractor shall take care of the labour.
 - G. Contractor shall provide any tool to the labour very carefully while he is working in the manhole so that any hazardous may not be arises.
 - H. Contractor shall arrange Mucadum and Supervisor continuous on the site during the work
 - I. Contractor shall arrange the training for the labours working in the manhole to operate the safety measures.
 - J. Contractor shall provide Uniform as well as operating tools to work in the manhole.
 - K. Contractor shall make the arrangement that every cover of the manhole shall be fixed on the manhole sheet after the work will be completed.
 - L. Contractor shall remove the sludge/ silt removed from the manhole and pipe section such a way that it may not be dangerous for health of public and traffic of the road around vicinity of the work area.
 - M. Contractor shall furnish the data daily to the BMC office and shall make the arrangement accordingly.
 - N. Contractor shall provide the Mobile phone to his supervisor/ Engineer on the work place for better coordination with BMC staff.

- O. Contractor shall appoint eligible and capable supervisor to handle the any type of situation / accident at the site and he should remain present at the work site.
- P. If any accident occurs at the work site contractor shall fully responsible and BMC will not provide any help in that manner.
- Q. The Contractor shall maintain suitable working conditions such as approach for labours and the Vehicles / Equipments up to the Manhole on his cost.
- R. Contractor shall arrange water tanker as and when required water during the commissioning of the network.

Seal and Signature of the Bidder
Date:

Corporation Engineer
Bathinda Municipal Corporation

D4:- Specification pertaining to the Item:-

De-silting work for existing Following size dia. sewerage line and its manhole of any size and depth. Work shall be executed as per guideline of honorable Supreme Court. Rate includes dewatering as and when required for the work and also includes arrangement for the safety and securities system with barricading on site, carting of silt up to 5.0 Km lead, required power arrangement at site, testing of network by hydraulic flow test and also includes excavation work, dismantling and construction of kachcha / pucca dummies and breaking and reconstruction of any part of the manhole etc. complete.

Contractor shall arrangement for the safety and securities system with barricading on site, carting of silt up to 5.0 Km lead, required power arrangement, machinery, equipments and manpower at the work. If any water found in the pipeline or manhole contractor shall dewater from the manhole or pipeline by any means of machinery. He shall take care of not disturbing any people residing in the vicinity area during the work of dewatering and de-silting. He shall take care of not lowering any labour in the manhole / pipe. Contractor shall use any kind of machinery as well as equipments for de-silting the pipeline. After de-silting the pipe as well as manhole Engineer in charge of the work shall verify the pipeline whether it is cleared or not. He shall have to make the arrangement of any kind of material like water and equipments like pump, hosepipe, Fighter, Jetting, Suction machinery, for testing and commissioning the pipeline. All rates are inclusive of dewatering, de-silting, carting the silt at 5 km lead, testing and commissioning the pipeline with barricading, safety guards.

Contractor shall have to make the line dead (Free of sewage flow) if the line found flowing with the Clean or Sewage Flow at his own risk and cost. He shall make the arrangement for diverting the sewage flow from the sewage flow.

Contractor shall make the arrangement for line commissioning after de-silting it with if available nearby freely. If it not available in the near vicinity area freely Contractor himself provide it on his own cost.

Seal and Signature of the Bidder
Date:

Corporation Engineer
Bathinda Municipal Corporation

BOQ

ESTIMATE FOR CLEANING & DESALTING OF MAIN SEWER LINE WITH SUPERSUCCER MACHINE IN DIFFERENT PARTS OF BATHINDA CITY AND MAINTENANCE OF MAIN SEWER LINE FOR FIVE YEARS.

Desilting and taking out of debris / silt rubbish etc. from trunk sewer which is heavily surcharged by machine/ mechanical device i.e safe disposal of silt and thereafter CCTV survey of following sewer line with pan and tilt rotated camera and recording and giving three set of C.D or Cassette as directed by Engineer incharge, sealing of all joint of the sewer line found leakage with admixture of cement and other suitable chemicals, installation of adequate number of over pumping system. Leek proof stinking arrangement on up stream and downstream side of over working length temporary rising main etc. for smooth flow of sewerage system to avoid flooding in the area. Supply of all material, labour, tools and plants, temporary power connection with standby generator set, gas detector, forced air ventilator etc. and provision of safety equipment as per guide line laid in IS 1972/1987 of Indian Standard Traffic Control Arrangement and proper lighting at night. barricading display of sign boards, insurance of work man and cleaning of site, removal of all hindrance / obstruction, obtaining permission from other departments, cutting of bitumen roads, execution and demolition of brick work in taper portion of M/S and restoring and getting the same corrected / completed. Nothing extra shall be payable.

Sr. No.	Size of Sewer	Length in mtrs.	Rate per mtrs.	Amount
1.	24" dia or 600mm dia	1200	2102.00	2522400.00
2.	30" dia or 750mm dia	3000	2966.00	8898000.00
3.	36" dia or 900mm dia	2443.60	4083.00	9977218.00
4.	39" dia or 975mm dia	859.75	4716.00	4054581.00
5.	45" dia or 1125mm dia	2445.12	5557.00	13587531.00
6.	24" x 36" sewer	1795.00	2966.00	5323970.00
	Total			44363701.00

Say Rs. 4.44 Crore