

Surat Municipal Corporation

New East (Sarthana) Zone



NAME OF WORK :- Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.

E-Tender

TENDER NOTICE (online) NO: DMC/NEZ/03/2026-2027, Work No. 9

VOLUME-I : TECHNICAL BID

Uploading Of Tender Document	:	25/06/2026
Downloading Of Tender Document	:	From 25/06/2026 to 13/07/2026 upto 18.00 hrs.
Date Of Pre-Bid Conference	:	-
Last Date Of Submission Of Online Tender (Tender Fees, EMD And Other Documents In Soft Copy)	:	On or Before 13/07/2026 upto 18.00 hrs
Last Date Of Submission Of Tender Fees, EMD And Other Documents In Hard Copy	:	20/07/2026 up to 18.00 hrs. in sealed envelope strictly by RPAD/Speed post to Chief Accountant, Surat Municipal Corporation, Muglisara, Surat-395003, Gujarat.
Opening Of Online Technical Bid Etc.	:	On Dt. 14/07/2026 10:00 hrs. on wards. (Probable)
Tentative Price Bid Opening	:	22/07/2026 10:00 hrs. on wards.(Probable)
Estimated Amount	:	Rs. 99,75,158.12
E.M.D.	:	Rs. 1,00,000.00
Document Fees	:	Rs. 2,832.00
Registration	:	"D" Class with Experience

TENDER TO BE SUBMITTED TO:

THE CHIEF ACCOUNTANT,
SURAT MUNICIPAL CORPORATION,
MUGLISARA, SURAT – 395 003.

BY R.P.A.D. / SPEED POST THROUGH POSTAL AUTHORITY ONLY

[TECHNICAL -BID]

NAME OF WORK : Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.

Estimated Amount	:-	Rs. 99,75,158.12
E.M.D.	:-	Rs. 1,00,000.00
Tender Fee	:-	Rs. 2,832.00
Receipt No.	:-	
Date	:-	

Issued to _____
CONTRACTOR

Issuing Office: Executive Engineer, New East (Sarthana) Zone,
Surat Municipal Corporation.

Signature & Date of the Issuing Officer :-

**Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation**

SURAT MUNICIPAL CORPORATION

Name Of Work :- Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.

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SURAT MUNICIPAL CORPORATION

1.0 NOTICE INVITING TENDER

(A) RECEIPT AND OPENING OF TENDER :

Online Tenders will be received from the established and reliable contractors From **25/06/2026 to 13/07/2026** upto 18.00 hrs. on website smc.nprocure.com. The tender received after due time and date specified will not be accepted.

(B) **Name Of Work :-** **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.**

Estimated Cost	: Rs. 99,75,158.12
Earnest Money Deposit	: Rs. 1,00,000.00
Time Limit	: 12 (Twelve) months (INCLUDING MONSOON)
Document Fee	: Rs. 2,832.00
Registration required	: " D " class

(C) OPENING OF TENDERS :

The tenders will be opened online in presence of bidders and opening authority subject to receipt of Tender Fees, EMD and other Documents in hard copy. The tenders will be opened in two stages i.e Technical Bid and Price Bid.

(D) PURCHASE OF TENDER DOCUMENTS:

Tender Documents can be downloaded from smc.nprocure.com **From Dt. 25/06/2026 to 13/07/2026 up to 18.00 hrs**

Tender documents fees of **Rs. 2,832/-** per set which is required for submission of tender towards the cost of tender documents in pay order or by demand draft of any nationalized bank, in favour of "The Commissioner, Surat Municipal Corporation" payable at Surat and shall be submitted along with EMD and other documents. The cost of the Tender Documents will not be refunded in any circumstances. The Surat Municipal Corporation shall not be liable for any postal delay in any case.

- (ii) Demand Draft for E.M.D. & Tender (Bid) fee shall be submitted in electronic format through online mode (by scanning) while uploading the bid. This submission shall mean that E.M.D. & tender fee are received for purpose of opening of the bid. Accordingly offer of those shall be opened whose E.M.D. & tender (bid) fee is received electronically. However, for the purpose of realization of D.D. bidder shall send the D.D. in original through RPAD / Speed post so as to reach to Chief Accountant, SMC as per schedule from the last date of online submission of the bid as per tender notice.

(iii) Following Penalty based actions for not submitting D.D.in original shall be initiated by SMC.

biding	If Situation arise	Relaxation /Punitive action
Tendere's First Time	If bidder fails to submit the original D.D. (For tender fee and E.M.D.) within stipulated time mentioned in published tender notice for this work, in this situation.....	Relaxation : Bidder shall pay Penalty as per following table within 10 Days from the last date of the hard bid submission as mentioned in published tender notice. If bidder fails to deposite the penalty amount (as per following table) Punitive action will be taken as below. Punitive action : Abeyance of registration for 06 (six) months with cancelation of E- tendering code for 06 (six) months
Tendere's Second Time	If bidder fails to submit the original D.D. (For tender fee and E.M.D.) within stipulated time mentioned in published tender notice for this work, in this situation.....	Punitive action : Abeyance of registration for 06 (six) months with cancelation of E- tendering code for 06 (six) months
Tabel for Penalty		
Sr.No.	Tender Amount in Rs.	Penalty Amount in Rs.
1	Up to Rs.1.00Cr.	10,000/-
2	More Than 1.00 Cr. And Up to 10.00Cr	20,000/-
3	More Than 10.00Cr.And Up to 50.00Cr	30,000/-
4	More Than 50.00Cr.And Up to 100.00Cr	70,000/-
5	More Than 100.00Cr	1,00,000/-

- (iv) **Any documents in supporting of bid shall be in electronic format only through online (by scanning) & hard copy will not be accepted separately.**
- (v) **All documents must be coloured scanned to be seen as original. Scanning in black and white or gray shall not be acceptable.**
- (vi) **All the documents must be notarized with clearly displaying stamp, number and name of the notary.**
- (E) **CONTRACT PERIOD :**
The total contract period is hereby fixed as **12 (Twelve) months** (INCLUDING MONSOON) from the 15th Day of issuance of work order.
- (F) **Tenderer must comply with and agree to all instructions & requirements in the Notice and in the Instructions to Tenderers, including requirements in the Contract Documents.**
- (a) All tenders must be submitted in the prescribed Tender form.
- (b) Each Tender must be accompanied by the completion Schedule.
- (c) Each tender must be accompanied by the Tender Security (Earnest Money Deposit) **Rs. 1,00,000.00 Ps.** as specified in the **IT-07.**

- (d) The successful tenderer shall execute the Contract Agreement within fifteen days after the date of Notice of award.
- (e) The successful Tenderer will be required to furnish a performance bond (Security Deposit) of and amount equal to (2%) Two percent of the tendered amount.
- (f) The successful Tenderer shall furnish insurance in accordance with the contract documents.
- (g) The Surat Municipal Corporation may withhold issuance of the Notice of proceed for a period not exceeding fifteen days after the date of execution of the contract agreement.
- (h) The tender and tender guarantee bond (Earnest Money Deposit) shall be submitted by the Agency in whose name tender has been issued. Transfer of tender documents to any other party is prohibited.
- (i) All intending tenderers will have to purchase digital signatures in order to participate in the online bidding process.

(G) RECEIPT OF TENDER DOCUMENTS :

The following details are to be submitted online on smc.nprocure.com :

- a. Document fees and EMD Details
- b. Price Bid

The following details shall be submitted in hard copy at prescribed address :

- a. Tender fees in prescribed format
- b. Earnest Money Deposit in prescribed format
- c. Technical Bid and other documents

Please note that Price bid shall not be submitted in hard copy under any circumstances. This will hold the tender liable for rejection.

(H) Tender Validity Period :

The validity period of the tender submitted for this work shall be of **one hundred twenty (120)** calendar days from opening of the date of price bid the work and the Tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period.

(I) Rights Reserved :

Without assigning any reason, The Surat Municipal Corporation reserves the right to reject the lowest or any other or all tenders or part of its. To waive any informality or irregularity in any tender, which in the opinion of the Surat Municipal Corporation does not appear to be in its best interest and the tenderer shall have no cause of action or claim against the Surat Municipal Corporation or its officers, employee, successors or assignees for rejection of this tender.

The Surat Municipal Corporation further reserves the right to withhold issuance of the notice to proceed, after execution of the contract agreement by the successful Tenderer. The Surat Municipal Corporation is not obliged to give reasons for any such action.

During Tender validity period, if any Tenderer withdraws or makes any modifications or additions in the terms and conditions on his own in this tender, then The Surat Municipal Corporation shall without prejudice to any right or remedy be at liberty to reject the tender and forfeit the Earnest Money Deposit in full. Such Tenderer may be disqualified from tendering for further works under the jurisdiction of The Surat Municipal Corporation.

The Surat Municipal Corporation reserves the right to increase or decrease the scope of work and split the tender in two or more parts without assigning any reason even after the award of contract.

Executive Engineer
New East (Sarothana) Zone
Surat Municipal Corporation

Signature of The Contractor.

2.0 INFORMATION TO TENDERER:

1.	Tender validity period	:	120 days (One hundred & Twenty days) from the opening of the date of opening of price bid of tender
2.	Earnest Money Deposit	:	Rs. 1,00,000.00
3.	Security Deposit	:	Two Percent (2%) of tendered Amount.
4.	Time of Completion	:	For the complete contract 12 (Twelve) months (INCLUDING MONSOON)
5.	Period of liability for defects	:	Twelve Months after completion of work.
6.	Penalty for delay	:	0.2% (Zero Point Two percent) of the contract price per day, maximum up to 10% (Ten percent) of the contract price.
7.	Last date of download of tender	:	13/07/2026 up to 18:00 hrs from smc.nprocure.com
8.	Last date of submission of online Tender	:	13/07/2026 up to 18:00 hrs
9.	Last date of submission of Tender fees, EMD and other Documents in Hard Copy	:	Up to 20/07/2026 up to 18:00 hrs

Signature Of The Contractor.

Executive Engineer
New East (Sarhana) Zone
Surat Municipal Corporation

3.0 CHECK LIST

1. Tenderers to note last date and time of submission of Tender Fees, EMD and other documents and that they are to be posted by Registered Post A. D. / Speed Post only.
2. Tender (Technical Bids and Documents) should be duly sealed and the covering envelope is to be only superscribed as **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.**
3. Tender Security Bond for Earnest Money Deposit should be submitted as per Articles **IT-07** (Earnest Money Deposit)
4. Conditional tender will be rejected outright by the Surat Municipal Corporation, without giving any reason.
5. All information as demanded should be submitted.
6. Information regarding capability etc. as per clause No.**IT-04** (General Performance Data) should be submitted in hard copy alongwith tender fee and EMD.
7. Please verify before SEALING that Tender (Technical Bids and Documents) are signed, wherever required in each and every respect.

Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

4.0 INSTRUCTION TO TENDERERS

IT-01 GENERAL :

The Contract documents may be secured in accordance with the notice Inviting Tender for the work called. The work shall include supply of materials necessary for construction of the work.

IT-02 INVITATION TO TENDER :

The Surat Municipal Corporation hereinafter referred to as the Corporation will receive tenders for the **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation** as per the specifications in the tender documents. The tenders shall be opened in presence of opening authority Surat in the presence of tenderers or their representatives who are present. The Corporation reserves the right to reject the lowest or any other or all tenders or part of it which in the opinion of the Corporation does not appear to be in its best interest, and the tenderer shall have no cause of action or claim against the corporation or its officers, employees, successors or assignees for rejection of his tender.

IT-03 LANGUAGE OF TENDER :

Tenders shall be submitted in English, and all **information** in the tender shall also be in English, Information in any other language shall be accompanied by its translation in English. Failure to comply with this may make the tender liable to reject.

IT-04 QUALIFICATIONS OF TENDERERS :-

(A) Tenderer shall be required to submit the enlisted documents along with E.M.D. and tender fees in soft copy (By Scanning). EMD and Tender fee shall be submitted in hard copy also and in prescribed form for realization. If documents are insufficient or it does not match the required criteria mentioned below, then the Price Bid of the tenderer shall not be opened.

Mainly tenderer shall fulfill following for the pre-qualification.

(B) QUALIFYING CRITERIA OF BIDDER

Sr. No.	Criteria	Documents required for complete submission
1.0 Financial		
1.1	Average Annual financial turnover during the last 3 years, ending 31/03/2026 , should be at least 30% of the estimated cost	Copy of certificate from Chartered Accountant along with copy of Balance sheets.
1.2	Solvency Certificate Fresh Solvency certificate from bankers of schedule bank / nationalized bank. Minimum value of solvency shall be 20% of estimated cost of the Tender (Solvency certificate should not be older	from bankers of schedule bank / nationalized bank

	than One year from Last date of online Tender submission.)	
2.0 Registration		
2.1	Minimum "D" class Registration with any government, semi government organization	Registration Certificate
2.2	power of attorney, partnership deed or registration deed.	Attested copy should be submitted
3.0 Relevant Experience		
3.1	Similar works during last 7 years.	Attested copies of certificates from head of the office concerned for completion of the works. Only Govt. or Semi Govt. Works shall be considered for Similar Works.
3.1.1	Three similar completed works, each costing not less than amount equal to 40% of the estimated cost put to the tender.	
	Or	
3.1.2	Two similar completed works, each costing not less than the amount equal to 50% of the estimated cost put to the tender.	
	Or	
3.1.3	One similar completed works, each costing not less than the amount equal to 80% of the estimated cost put to the tender.	
4.0 Other details		
4.1	Black list. The Bidders shall note that in case the Bidder is blacklisted / stated as defaulter / barred participating in tenders by any of government agencies / semi government agencies or any other equivalent agencies during last 5 years then in that case, the Bidders will be disqualified and will not be allowed to participate in the bidding process, though bidder satisfies all the qualification conditions mentioned above. In this regard, the decision of the Surat Municipal Corporation will be final and binding to Bidder.	AFFIDAVIT
4.2	Works on hand & Litigation The Bidder including any Member shall provide details of all their on-going projects along with stage of litigation, if so, against the Employer / Governments. (Not Applicable)	STATEMENT-A & B

NOTE:- Similar works means :- Providing & laying of Underground Gravity RCC Drainage / Storm Drainage Pipe line works and Maintenance Work only.

- (a) Turnover during last 3 years, ending 31st March of previous financial year should be atleast 30% of Estimated Cost. An attested copy of annual turnover for last 3 years should be enclosed.

- (b) Solvency certificate from bankers of schedule bank / nationalized bank for the 20% of tender amount. Tenderer has to submit higher amount of bank solvency if so desired by Commissioner, SMC **(Solvency certificate should not be older than One year from Last date of online Tender submission.)**
- (c) An attested copy of registration with MES, Various department of State Govt., Surat Municipal Corporation, CPWD etc.
- (d) List of the works already completed in last 7 years in prescribed proforma as per Annexure-I and attested copies of certificates from head of the office concerned for completion of the works.

Following enhancement factors will be used for the cost of works executed and financial figures to amount base for the value of the works completed in India.

Financial Year		Multiplying factor
One	(2025-26)	1.10
Two	(2024-25)	1.21
Three	(2023-24)	1.33
Four	(2022-23)	1.46
Five	(2021-22)	1.61
Six	(2020-21)	1.77
Seven	(2019-20)	1.95

Bidder should indicate actual figures of cost and the amount for the work executed in Statement-A without accounting for the above mentioned factors.

- (e) Declaration regarding the work on hand with the tenderer should also be given in prescribed performas as per Statement-B. Attested copies of work orders, interim certificates if any shall also be attached as supporting documents.
- (f) Attested copy of partnership deed, power of attorney etc.
- (g) Application Received from joint venture / consortium shall not be considered.**
- attested copy of partnership deed, power of attorney etc.
 - passport size photographs of partner / all partners on relevant page of technical bid.
 - Tenderer shall submit only one tender for the work put to this tender.
 - Tenderer shall submit the certificate of Employers code number under EPF Act.
- (h) Even though the Bidder meets the above criteria, they are subject to be disqualified if they have**
- Made misleading or false presentations in the forms, statements and attachments submitted in proof of the qualification requirements; and /or
 - During verification if it is found from client that of poor performance such as abandoning the works, for financial failure or abnormal delay in work etc.
 - Regarding Litigation, in case where Bidder is involved in illegal practice like any activities of corruption, coercive practice or debarred/blacklisted in last 05 years by Any Govt. / Organization in respect of performance of Bidder, SMC authority requires that bidders under this contracts, observe the highest standard of ethics during the procurement and execution of such contracts.

1. Will reject a proposal for award if it determines that the bidder has engaged in any corrupt or fraudulent practices in competing for this contract or in past history and
2. Will reject a proposal if it found debarred/blacklisted by any State Govt. /Govt. of India/ Semi Government/ PSU in last 05 years.

IT-05 TENDER DOCUMENTS :

Printed and online documents and set of drawings shall comprehensively be referred to as Tender documents. The several sections forming the documents are the essential parts of the contract and a requirement occurring in one shall be binding as though occurring in all. They are to be taken as mutually explanatory and describe and provide for complete works.

IT-06 EXAMINATION BY TENDERERS :

- A. At his own expenses and prior to submitting his tender, each tenderer shall (a) examine the contract Documents, (b) visit the site and determine local conditions which may effect the work including the prevailing wages and other pertinent cost factors, (c) familiarize himself with all CENTRAL, State and local laws, ordinance, rules, regulations and codes affecting the material supply including the cost of permits and licenses required for the work and (d) correlate his observations, investigations, and determinations with the requirements of the Tender Documents.
- B. The tender quantity is approximate and may increase or decrease. Any increase or decrease in quantity will not entitle tenderer to claim any extra over the quoted rate.
- C. Tender Documents be completed by legible ink, checked in a responsible manner, signed, stamped and returned together with the Tender Security Bond by the stipulated date, which shall form the Tender.

The Tenderer is required to complete :

- (i) The form of tender, including the Appendices thereto Tender Security Bond and the Tender summary duly signed and stamped.

All the pages in which entries are required to be made by the tenderer are contained in the tender documents and the tenderer shall not take out or add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda issued pursuant to Clause IT-17 hereof.

IT-07 EARNEST MONEY DEPOSIT:

The Tender shall be accompanied by of Earnest Money Deposit **Rs. 1,00,000.00/-** The tenderer shall pay Earnest Money Deposit by pay order/demand draft issued in favour of Commissioner, Surat Municipal Corporation, Surat of **below mentioned banks** only. **The Earnest Money Deposit in the form of FDR or cheque shall not be accepted.** The tenderer shall have to mention details of Earnest Money Deposit on the seal cover of Earnest Money Deposit. The tender received without Earnest Money Deposit shall be out rejected.

The instruments for Earnest Money Depository shall be issued by or payable/encashable at Surat Branch of the said banks only.

All Nationalized Bank

As per below list of Bank (as per GR no.:FD/MSM/e-file/04/2025/2712/DMO, Dt.01/04/2024)

1. Axis Bank
2. A U Small Finance Bank
3. Bandhan Bank
4. City Union Bank
5. CSB Bank
6. DBS Bank India Limited
7. DCB Bank
8. Dhanlaxmi Bank
9. Equitas Small Finance Bank
10. Federal Bank
11. HDFC Bank.
12. HSBC Bank
13. ICICI Bank.
14. IDBI Bank.
15. IDFC First Bank.
16. IndusInd Bank
17. Jammu and Kashmir Bank
18. Jana Small Finance Bank
19. Karnatak Bank
20. Karur Vysya Bank
21. Kotak Mahindra Bank
22. RBL Bank
23. South Indian Bank
24. Standard Chartered Bank
25. Tamilnadu Mercantile Bank
26. Ujjivan Small Finance Bank
27. YES Bank
28. Ahmedabad Mercantile Co-operative bank
29. Nutan Nagrik Sahakari Bank limited
30. Rajkot Nagarik Sahakari Bank Ltd.
31. Sarswat Co-Operative Bank Ltd.
32. SBPP Co-Operative Bank Ltd.
33. SVC Co-Operative Bank Ltd.
34. The Cosmos Co-Operative Bank Ltd.
35. The Gujarat State Co-operative bank Ltd.
36. The Surat District Co-op. bank
37. The Surat People's Co-op. bank Ltd.
38. The Baroda Central Co-Operative Bank
39. The Panchmahal District Co-op. bank
40. The Kalupur Commercial Co-op. bank
41. The Rajkot Commercial Co-op. bank
42. The Banaskantha Mercantile Co-operative bank Ltd.
43. Gujarat Gramin Bank

All the eligible banks are instruted to collect the original documents/papers of guarantee from the concerned tendering authority.

- B. The Earnest Money Deposit(Tender guarantee) will be forfeited in the event, the successful tenderer fails to accept the contract and fails to submit the Performance Guarantee Bond to the owner as stipulated in this tender documents within ten days after receipt of notice of award of contract. In such case owner may disqualify the tenderer from tendering for further works, under the jurisdictions of the Corporation (S.M.C.).
- C. The Earnest Money Deposit of the successful tender shall be returned after the performance guarantee bond, as required, if furnished by the contractor.
- D. No interest shall be paid by the owner on any tender guarantee.

IT-08 INCOME TAX CLEARANCE CERTIFICATE :

In view of the latest circular of IT Department IT clearance certificate is not required. However the contractor shall give zerox copy of the PAN card.

IT-09 PREPARATION OF TENDER DOCUMENTS :

Tenderers are requested to note the following while preparing the Tender Documents :

- A. Technical bid, EMD and Tender fees shall be submitted on the Tender Form bound here IN English. All tender items and statements shall be properly filled in. Numbers shall be stated both in words and in figures where so indicated, and signatures of all persons signing shall be in longhand.
- B. Technical Bid shall be accompanied by the prescribed tender security bond and other required documents and drawings. All witnesses and sureties shall be persons of status and probity and their full names, occupations and address shall be stated below their signatures. All signatures in the Tender Documents shall be dated.
- C. Variations to the Contract Documents requested by the tenderer may be affixed to the Tender Document in the space available and duly signed and stamped. Such variations may be approved or refused by the Engineer at the time of adjudications of Tenders, and in either case the Engineer is not obliged to give reasons for his decisions.
- D. Delivery of Tenders shall comply with Notice inviting tenders as to place, date and time.
- E. Price Bid shall be submitted online. Tenderers are requested to quote for all four parts of the tender.

IT-10 SUBMISSION OF TENDERER DOCUMENT :-

Following documents shall be submitted in hard copy to Surat Municipal Corporation:

- Earnest Money Deposit as mentioned in the Tender.
- Tender Fees as mentioned in the tender
- Affidavit (Annexure III) on Non Judicial Stamp Paper of Rs.300/-
- Under taking by the Bidder for not black listed (Annexure VII) on Non Judicial Stamp Paper of Rs.300/-
- Addenda-Corrigendum (if any) duly signed by Contractor.

Technical bid and price bid are not to be submitted in physical form. Please note that non submission of Technical Bid as well as price bid does not absolve the bidders

from any liability created from the bid condition and bidding process. Technical-Bid and Price Bid in hard copy shall be submitted by Successful bidder upon intimation from Surat Municipal Corporation.

Note :-

Demand draft for E.M.D & Tender Fee shall be submitted in electronic format only through online(by scanning) while uploading the bid. this submission shall mean that E.M.D and tender fee are received for purpose of opening the bid .Accordingly offer of those shall be opened whose E.M.D and tender fee is received electronically. However for the purpose of realization of D.D bidder shall send the D.D in original through RPAD/Speed post so as to reach to Account department (Main office), SMC within stipulated date as mentioned in tender notice for the submission of tender FEE & E.M.D.

Penalative action for not submitting D.D in original to Account Department (Main Office)by bidder shall be initiated and action shall be taken for abeyance of registration and cancellation of E – tendering code for one year.

Any documents in supporting of bid shall be in electronic format only through online (by Scanning) & hard copy will not be accepted separately.

All necessary documents mentioned in Technical bid (if any).

Any Documents in supporting of bid shall be in Electronic format only through online (by Scanning) & hard copy will not be accepted separately.

- All documents must be coloured scanned to be seen as original. Scanning in black and white or gray shall not be acceptable.
- All the Documents must be notarized with clearly displaying stamp, number and name of the notary.

(i) COVER-1 : Technical Bid

E.M.D and Tender Fees for the work of **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation** along with other Documents in Hard Copy upto **Dt.20/07/2026** up to 18:00 hrs. Also mention the name of tenderer, address, tender notice number etc. on the cover.

(ii) PRICE BID

Price bid for the work of **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation** shall be submitted online.

The name of work to be written on cover shall be **Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.** Also mention the name and the address of tenderer, tender notice number on the cover and to be submitted to the **Chief Accountant, Surat Municipal Corporation, Muglisara, Surat – 395 003.**

2. Tenderer shall be required to submit the enlisted documents as mentioned below in Cover-1. If necessary document founds insufficient then the Price Bid of the tenderer shall not be opened.
 - (a) The tender shall be accompanied by Earnest Money Deposit of **Rs. 1,00,000.00/-**. The tenderer will pay **Earnest Money Deposit by Pay Order/Demand Draft** issued in favour of "Commissioner, Surat Municipal Corporation, Surat" by Nationalized Bank.
 - (b) A covering letter detailing various considerations considered in tender shall invariably be given.
 - (c) Passport size photographs of all the partners (incase of partnership firm) to be fixed on relevant Page of the tender documents.
 3.
 - (a) List of tools, plants and equipments with tenderer in detail.
 - (b) Technical establishment/staff of the tenderer in required Performa with their names, qualifications and experience.
 - (c) Tenderer shall furnish along with the tender, information regarding Income tax circle of the district in which he is assessed for income tax with PAN No.
 4. Submission of a tender by a tenderer shall mean that he has read this notice and contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and nature of required quantities of Materials stores, tools and plants etc. that may be required by him in carrying out the work and of local conditions and laws and bylaws of the Government, Surat Municipal Corporation and other factors bearing influence on the execution and cost of the works.
 5. E.M.D., Tender Fee and other necessary document in hard copy shall be received by Registered Post A.D. or by Speed Post through Postal Authority only by the "Chief Accountant, Surat Municipal Corporation, Muglisara, Surat-395003 upto **20/07/2026 up to 18:00 hrs.**
- The same will be opened probably on the **14/07/2026, 11:00 hrs (Technical Bid- Soft Copy)(Probable) & 14/07/2026, 16:00 hrs. (Technical Bid-Hard copy) onwards (Probable)** in the presence of the tenderers, who shall remain present in the office of "Tender opening officer, Surat Municipal Corporation, Surat. Late tenders (i.e. tenders received after the specified time of opening), delayed tender (i.e. tenders received before the time of opening but after due date and the time of receipt of tender) shall not be considered at all. Tenders received by Registered Post A.D./ Speed Post after the time and the date specified in the tender notice shall not be received by the client from the postman. Such tenders if received will not be opened and will stand rejected.
6. Tender shall stand rejected if:
 1. Any eraser is made in the tender unauthenticated or any page or pages is/are removed or replaced.
 2. The tenderer shall submit the tender which satisfied each and every conditions laid down in the notice tender documents, failing which the tender will be liable for rejection.
 3. Tenderer's tender/quotation containing conditions shall be liable for rejection out rightly without assigning any reason for the same.
 4. Stipulates the validity period less than what is stated in the form or tender.

5. Stipulates his own conditions.
 6. Does not quote his rates inclusive of Octroi duty and other terminal or sales tax or CENTRAL taxes in his rates.
 7. Does not disclose the full names and address of all his partners in the case of partnership firm.
 8. Does not pay the Earnest Money Deposit by Demand Draft/Pay order and Tender Fees with Technical Bid (Cover-1).
 9. Does not submit the tender before the stipulated time and specified date in the Account Office as directed.
 10. Does not attached the document mentioned.
 11. The tenderer proposes any alteration in the work specified in the tender or in the time limit allowed for carrying out the work or any other condition.
7. All corrections, additions or posted slips to be initialed by the tenderer.
 8. All page of tender documents including specifications should be initialed by the contractor.
 9. The tenderer shall submit the tender which satisfies each and every conditions laid down in this notice and tender documents failing which the tender is liable for rejection.
 10. Notice of inviting tenders shall be a part of the contract documents.
 11. Acceptance of tenderer/quotation will rest with the competent authority of Surat Municipal Corporation who does not bind himself to accept the lowest and reserves the right to accept or to reject any or all quotations/tenders and no reasons will be given for acceptance or rejection thereof.
 12. The contractor shall also attach list of machineries, tools, plants, equipments which he propose to deploy for this work.
 13. All octroi duty and other taxes chargeable by the Municipal Corporation shall be payable by the Contractor.
 14. Tender once accepted shall be binding on the contractor even if the formal agreement is not signed.
 15. Tender once offered can not be withdrawn except with the permission of head of the concerned department, Surat Municipal Corporation, Surat.
 16. The successful tenderer shall be required to enter in to agreement with Municipal Corporation after placing the work order for the said work from SMC.
 17. The successful tenderer may be required to furnish surety of 20% of the contract value on stamp paper if so desired by the Municipal Commissioner.
 18. The tenderers are requested to give complete specification of work quoted.
 19. Unless specifically mentioned by the tenderer for the extra payment of taxes on price quoted by them it will be presumed the prices quoted are inclusive of the all taxes and no claim will be entertained for payment of extra taxes on the bills submitted by them.
 20. The Price-bid will be opened only after technical clarifications are clarified.
 21. Surat Municipal Corporation reserves the right to open or not to open any or all Price-bid without assigning any reason thereof.

IT-11 TENDER VALIDITY PERIOD :

The validity period of the tender submitted for this work shall be of one hundred twenty (120) Calendar day from the opening of the price bid and that the tenderer shall not be allowed to withdraw or modify the tender offer on his own during the validity period. The tenderer will not be allowed to withdraw the tender or make any modifications or additions in the terms and conditions of his own in his tender. If this is done then the owner shall, without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the Earnest Money Deposit in full.

IT-12 SIGNING OF TENDER DOCUMENTS :

If the Tender is made by an individual it shall be signed with his full name above his current address. If the tender is made by a Proprietary firm it shall be signed by the proprietor above his name and the name of his firm with his current address.

If the tender is made by a firm in partnership it shall be signed by all the partners of the firm above their full names and current addresses, or by a partner holding the power of attorney for the firm signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. A certified copy of the partnership deed, current addresses of all the partners of the firm shall also accompany the tender.

If the tender is made by a limited company or a limited Corporation, it shall be by a duly authorised person holding the power of attorney for signing the Tender in which case a certified copy of the power of attorney shall accompany the Tender. Such limited company or Corporation may be required to furnish satisfactory evidence of its existence before the contract is awarded.

All witnesses and sureties shall be persons of status and probity and their full names, occupations and addresses shall be stated below their signatures. All signatures in the Tender document shall be dated.

IT-13 WITHDRAWAL OF TENDERS :

If, during the Tender validity period, the Tenderer withdraws his Tender, the Tender Security (Earnest Money) shall be forfeited and the Tenderer may be disqualified from tendering for further works under the jurisdiction of SURAT MUNICIPAL CORPORATION.

IT-14 INTERPRETATIONS OF TENDER DOCUMENT :

Tenderers shall carefully examine the tender documents and fully inform themselves as to all the conditions and matters which may in any way effect the work or the cost thereof. Should a tenderer find discrepancies or omission from the specifications or other documents, or should be in doubt as to their meaning, he should at once address query to the Divisional Head provided for concerned authority as referred in the Tender Document in Clause GC-01 (Definitions and interpretations) of the (General Condition of Contract). Any resulting interpretation of the Tender documents will be issued to all Tenderers as an addenda corrigendum. Verbal clarification and / or information given by the SMC / Consulting Engineer shall not be binding on the Surat Municipal Corporation .

IT-15 ERRORS AND DISCREPANCIES IN TENDERS :

In case of conflict between the figures and words in the rates, the rates expressed in words shall prevail and apply in such cases.

IT-16 MODIFICATION OF DOCUMENTS :

Modification of specifications and extension of the closing date of the tender, if required, will be made by an addendum. Copies of each addendum will be sent to all

tenderers. These shall be Signed and shall form a part of tender. The tenderer shall not add to or amend the text of any of the documents except in so far as may be necessary to comply with any addenda.

IT-17 ADDENDA

Addenda form part of the contract documents & full consideration shall be given to all addenda in the preparation of tenders. Tenderers shall verify the number of addenda issued, if, any and acknowledge the receipt of all Addenda in the Tender. Failure to acknowledge may cause the Tender to be rejected.

- A. The Engineer of the owner may issue Addenda to advise Tenderers of changed requirements. Such addenda may modify previously issued Addenda.
- B. No Addendum may be issued after the time stated in Notice Inviting Tenders.

IT-18 TAXES AND DUTIES ON MATERIAL :

GST (Goods & Service Tax) has come in existence from 1st July, 2017. Contractor/ Successful Bidder is bound to pay any amount of GST proscribed by the govt. of India as per the Terms of Contract agreed upon during the course of execution of this contract.

During the course of execution of Contract, if there is any change in Rate of GST (Goods & Service Tax) by the Government, the same shall be reimbursed/ recovered separately by SMC, subject to the submission of Original Receipt/ Proof for the amounts actually remitted by the successful Tenderer/ Contractor to the competent Authority along with a Certificate from Chartered Accountant of Contactor/ Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated/ submitted/ claimed within 30 (thirty) Days from the date of payment Remittance of GST within stipulated period shall be the sole responsibility of the successful Bidder/ Contractor, failing which, SMC may recover the amount due, from any other payable dues with SMC and decision of Municipal Commissioner shall be final and binding on the Contractor / Successful Bidder in this regard Further, non-payment of GST to the Government may lead to the termination of contract and forfeiture of Security Deposit/ Performance Guarantee Amount.

If imposition of any other new Taxes/ Duties/ Levies/ Cess or any other incidentals etc. or any increase in the existing Taxes/ Duties/ Levies/ Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract, the same shall be borne by the Contractor/ Successful Bidder only, in no case SMC shall be liable for the same.

As per the central goods and Service Tax Act-2017 Any Government department, local bodies and government undertaking public adventures published tenders amounting more than Rs. 2,50,000 & which commodities/ servies are comes under taxation than 2% TDS (1% for SGST & 1% for CGST) should be deducted. And if commodities/Servies are provided from interstate then 2% TDS should be deducted of IGST.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

NOTE :- The Rate mentioned in the Schedule-B are without GST. Prevailing GST will be paid Extra as per Government Amendment.

IT-19 EVALUATION OF TENDERS :

As per IT (04), Experience of the Contractor shall be considered for Similar kind of works.

IT-20 EVALUATION OF TIME REQUIRED FOR COMPLETION :

The time required for completion of work shall be considered as indicated by the tenderer in the completion schedule attached with the tender. The completion period mentioned in this schedule is to be reckoned from 15th day from the date of work order to proceed. Total completion period is calendar months from 15th day from date of issue of work order and tenderers should adhere to this delivery time.

IT-21 POLICY FOR TENDER UNDER CONSIDERATION :

Tenders shall be termed to be under consideration from the opening of the tender until such time an official announcement of award is made.

While tenders are under consideration, tenderers and their representative or other interested parties are advised to refrain from connecting by any means Municipal Corporation or representatives on matters related to the tenders under study. The Engineer's representative if necessary will obtain clarification on tenders by requesting information from any or all the tenderers either in writing or through personal contact, as may be necessary. The tenderers will not be permitted to change the substance of his tender after price submission. Non-compliance with this provision shall make the tender liable for rejection.

IT-22 PRICES AND PAYMENTS :

The tenderer must understand clearly that the price quoted are for the total works or the part of the total works quoted for and include all costs due to materials labour, equipment, supervisions, other services, royalties etc. and to include all extras to cover the cost. No claim for additional payment beyond the prices quoted will be entertained and the tenderer will not be entitled subsequently to make any claim on any ground excepting for the condition laid down in GC-35 (Price Adjustment) clause which is deleted.

IT-23 PAYMENT TERMS :

The terms of payment are defined in the General Conditions of Contract. The Surat Municipal Corporation shall not under any circumstances relax, their terms of payment and will not consider any alternative payment terms. Tenderers should therefore in their own interest note this provision to avoid rejection of their tenders.

IT-24 AWARD :

Award of the Contract or the rejection of tenders will be made during the Tender validity period stated in the Notice Inviting Tenders.

- A. After all contract contingencies are satisfied and the Notice of Award is issued, the successful Tenderer shall execute the Contract Agreement within the time stated in the Notice Inviting Tenders and shall furnish the Bond as required herein. The Contract Agreement shall be executed in the form stipulated by the owner. A copy of the required form is included in the contract documents.
- B. If the Tenderer receiving the Notice of Award fails or refuses to execute the Contract Agreement within the stated time limit or fails or refuses to furnish the Bond as required herein, the SMC may annul his award and declare the tender security forfeited.
- C. A Corporation, Partnership firm or other consortium acting as the Tenderer and receiving the Award shall furnish evidence of its existence and evidence that the officer signing the Contract Agreement & Bonds for the Corporation, partnership firm or other consortium acting as the Tenderer is duly authorised to do so.

IT-25 SIGNING OF CONTRACT :

The successful tender shall be required to pay the security deposit and to execute the contract within 15 days of receipt of intimation to execute the contract, failing which

the Surat Municipal Corporation will be entitled to annul the award and forfeit the Earnest Money Deposit. The person to sign the contract document shall be person detailed in Article IT-12.

IT-26 DISQUALIFICATION :

A tender shall be disqualified and will not be taken for consideration if :-

- (a) The outer envelope does not show on the outside the reference of bid and thus get opened before the due date of opening (as per Article IT-10 i.e. Submission of Tender Document).
- (b) The tender Security Deposit is not deposited in full and in the manner as specified as per Article IT-07 i.e. Earnest Money Deposit.
- (c) The tender is in a language other than English or does not contain its English Translation in case of other language adopted for tender preparation.
- (d) The tender documents are not signed by an authorised person (as per Article IT - 12 i.e. signing of tender documents).
- (e) The general performance data for qualification not submitted fully (As per Article IT-09 General Performance Data).
- (f) The tenderer does not agree to deposit security amount as specified (as per Article IT-25 i.e. Signing of Contract).
- (g) The tenderer does not agree to payment terms defined as per Article IT-23 i.e. Payment Terms.)
- (h) Conditional tender.

A. Tenderer may further be disqualified if :

- (a) Price variation is proposed by the Tenderer on any principles other than provided in the Tender Documents.
- (b) Completion schedule offered is not consistent with the completion schedule defined and specified in tender documents.
- (c) The validity of tender is less than that mentioned in Article IT-11 i. e. Tender Validity Period.
- (d) Any of the page or pages of tender is/are removed or replaced.
- (e) All corrections or pasted slips are not initialed by tenderer.
- (f) Any erasure is made in the tender.

IT-27 PERFORMANCE GUARANTEE (SECURITY DEPOSIT) :

• As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (Security Deposit) for Capital work : 2% of Tender value after issuing Work Order & 2% from the running bills_to guarantee the faithful performance completion and maintenance of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms mentioned below.

The total Security Deposit is 4% (Four) percent of contract value and shall be as under:

The successful tenderer shall have to pay initial security deposit at 2% (two) percent of the tendered amount.

- Initial Security Deposit (2%) shall be paid in form of Cash or Demand Draft/ Pay Order if the Tender Amount of work is **less than Rs. 2.00 crore.**

- Initial Security Deposit (2%) shall be paid in form of Cash or Demand Draft/ Pay Order / bank Guarantee (encashable at Surat city)/ FDR if the tender Amount of work is **more than Rs. 2.00 crore & 2.00 crore.**

The person/persons whose tender may be accepted [here-in after called the Contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assignees shall (within 15 days of the receipt by him of the notification of the acceptance of his tender) deposit with Municipal Commissioner cash or Government securities endorsed to the Commissioner sum sufficient which will make up the full security deposit specified in the tender.

If the amount of the security deposit to be paid in lump sum within the period specified above is not paid the tender contract already accepted shall be considered as cancelled. The security deposit lodged by Contractor shall be refunded after the expiry of the Defects Liability period as shown in the attached Memorandum after deducting dues, if any, which become liable to be recovered from the Contractor under the terms and conditions of this Agreement.

Regarding remittance and release of Security Deposit (SD), Retention money deposit (RMD) following clause will supersede over and above all the clauses depicted in the tender document.

Tender costing Less than Rs.2.00 Crore.

(a) Remittance of SD/RMD

- The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2% of approved tender cost in form of Cash or Demand Draft/ Pay Order of any Nationalised Bank (encashable at Surat city).
- The remaining amount of the Security Deposit i.e. 2% to be deducted from each running account bill.
- 5% Retention money deposit (RMD) to be retained from each running account bill.

(b) Release of SD/RMD

- The 2% Initial security deposit **in form of Cash or Demand Draft/ Pay Order** shall be released after clearance of Final bill by Audit Dept and completion of defect liability period.
- Whereas, the 2% security deposit recovered from the each running account bills Shall be released along with Final Bills according to Work Quality..
- 5% Retention money deposit (RMD) to be released along with final bill.

Tender costing Rs.2.00 Crore & more than Rs.2.00 Crore.

(a) Remittance of SD/RMD

- The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2%

of approved tender cost in form of in Cash or Demand Draft/ Pay Order / FDR / Bank Guarantee of any Nationalised Bank (encashable at Surat city).

(ii) The remaining amount of the Security Deposit i.e. 2% to be deducted from each running account bill.

(iii) 5% Retention money deposit (RMD) to be retained from each running account bill.

(b 1) Release of SD/RMD

(i) The 2% Initial security deposit **in form Demand Draft /Pay order / FDR** shall be released after clearance of Final bill by Audit Dept & completion of defect liability period.

(ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released along with Final Bills according to Work Quality.

(iii) 5% Retention money deposit (RMD) to be released along with final bill.

(b 2) Release of SD/RMD

(i) The 2% Initial security deposit **in form Bank Guarantee** shall be released along with Final Bills according to Work Quality.

(ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released after clearance of Final bill by Audit Dept & completion of defect liability period.

(iii) 5% Retention money deposit (RMD) to be released along with final bill.

The amount recovered from the running bills as security deposit shall not be allowed to be transferred in the form of Bank Guarantee. However, the remaining 50% (2% of Security Deposit) of the amount so, deducted from running bills will be allowed for conversion in the form of interest bearing fixed deposit receipt, (FDR) issued in favour of the Municipal Commissioner, Surat Municipal Corporation, Surat by a Nationalized Bank located at Surat only. Additional stamp duty payable as per government prevailing rule shall be paid by contractor for remittance of this FDR.

It is clarified that the amount of security deposit shall be collected on the basis of contract price and not on the basis of Estimated Amount put to tender. As initial Security Deposit as mentioned above, accepted by the competent Authority shall have to be paid toward Security Deposit at the time of execution of agreement.

Interest will be payable on FDR (that is deducted from Running Bill and converted in to FDR for initial SD) for One year, after completion of work. After that no further interest shall be paid for any extended period what so ever.

If the Security Deposit is not paid within 15 days from the date of L.O.I. / Work Order than penalty at the rate of 0.065% per day of the amount of Security Deposit will charged. If the Security Deposit is not paid within one month with interest, necessary actions as per condition of contract will be taken.

Initial Security Deposit (i.e. 2% Of Tender Amount) in form of Bank Guarantee may be accepted as per relevant tender provision, However BG shall be valid till final date of completion of work+1year (Whether final bill is audited and paid or not). It shall be contractor's responsibility to extent the BG On Or Before expiry of time limit of BG. In case of late renewal of BG, penalty of security deposit shall be levied at the rate of 0.065% of per day of BG amount.

The successful tenderer shall have to enter into an agreement on a non-judicial stamp paper of Rs. 300/- if initial Security Deposit paid in form Bank Guarantee or Demand draft as per the form of the agreement approved by the Municipal Corporation, Surat.

If initial Security deposit is paid in form of Fixed Deposit, additional stamp paper amounting As per government's prevailing rule of Security Deposit shall be used to execute the agreement.

The undertaking shall be executed on stamp paper worth Rs. 300/-.

The Surety shall be executed on stamp paper worth Rs. 300/-.

IT-28 STAMP DUTY :

The successful tenderer shall have to enter into an agreement on a non-judicial stamp paper of Rs.4.90% of S.D. Amount, if S.D. Amount paid in form of FDR and otherwise as per the form of the agreement approved by the Municipal Corporation, Surat.

The Undertaking and Surety shall be executed on stamp paper worth Rs.300/- + Rs. 300/-

IT-29 BRAND NAMES :

Specific references in the specifications to any materials by tender's name, or catalogue number shall be construed as establishing a standard or quality and performance and not as limiting competition and the tenderer in such cases, may at their option freely use any other product, provided that it ensures and equal or higher quality than the standard mentioned and meets Surat Municipal Corporation approval.

IT-30 NON-TRANSFERABLE:

Tender documents are not transferable.

IT-31 COST OF TENDERING:

The owner will not defray expenses incurred by Tenderers in tendering.

IT-32 DEFECT OF TENDER :

The Tender for the work shall remain open for a period of 120 calendar days from the date of receipt of the tenders for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during the period. If any tenderer withdraws or makes any modifications or additions in the terms and conditions on his own, then the Surat Municipal Corporation shall without prejudice to any right or remedy, be at liberty to reject the tender and forfeit the earnest money in full.

IT-33 CHANGE IN A QUANTITY :

The Surat Municipal Corporation reserves the right to waive any informality in any tender and to reject one or all tenders without assigning any reasons for such rejections and also to vary to quantities of items or group as specified in the Schedule of price as may be necessary. Claim what so ever by the contractor on the basis of variation of quantities shall not be entertained.

IT-34 NEW EQUIPMENT AND MATERIAL ;

All materials, equipment and spare parts thereof shall be new, unused and originally coming from manufacturer's plant to the Corporation. The rebuilt or overhauled equipment/materials will not be allowed to be used on work.

IT-35 RIGHTS RESERVED:

The SMC reserves the right to reject any or all tenders, to waive any informality or irregularity in any tender without assigning any reasons. The SMC further reserves the right to withhold issuance of the notice to proceed, after execution of the contract agreement, for the period of time stated in the notice inviting tenders and no additional payment will be made to the successful tenderer on account of such withholding. The SMC is not obliged to give reasons for any such action.

IT-36 Municipal Commissioner reserves the right to reduce the scope of work and split the tender in two or more parts without assigning any reason even after the award of contract.

IT-37 No mobilization advance or advance on machinery will be given.

IT-38 The scope of work is clearly mentioned in the tender documents. The contractor shall have to carry out the work in accordance with the details specifications. No conditions will be accepted. The conditional tender will be liable to be rejected.

IT-39 The surplus excavated earth, after backfilling the trenches shall have to be removed from the site as directed.

IT-40 No Escalation charge/ rates shall be paid in any case.

Signature Of The Contractor.

Executive Engineer
New East(Sarthana) Zone
Surat Municipal Corporation

ANNEXURE-I TO II FOR PRE-QUALIFICATION
TO BE FILLED IN BY TENDERER

ANNEXURE-I

Performa for list of works of similar nature already completed by the Tenderer during last 7 years.

Sr. No.	Name of work and Place	Cost on Completion	Time taken in months to complete the work	Client name	Date of completion
1	2	3	4	5	6

Note: Bidder shall give completion certificate from client. In absent of such completion certificate, experience shall not be considered for evaluation. If completion certificate covers "Similar work (as per IT-04) with other work" then bidders shall have to submit copied of final bill indicating similar work or certificate of amount including "Similar work" from relevant authority.

Please Fill above details attached separate sheet.

Signature of the Contractor
With seal.

Place:

Date

ANNEXURE-II

Performa for declaration regarding work on hand with the tender:

Sr. No.	Name of work with place	Estimated Cost	Date of Issue of work order	Stipulated period of completion	Amount of work done	Brief details of delay if any	Name of client
1	2	3	4	5	6	7	8

Present liability = Total of column 3 - Total of column-6

Signature of the Contractor
with seal

Place

Date:

Note: Amount of work done in Column 6, should be given up to the month previous to the month in which tender are invited.

Please Fill above details attached separate sheet.

ANNEXURE-III

AFFIDAVIT

Name of the work: - Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.

- 1.0 I, the undersigned, do hereby certify that all the statements made in the required attachments are true and correct. I also understand that in case of wrongful/false information, corporation is entitled to take any civil & criminal punitive action against me/us.
- 2.0 The undersigned also hereby certifies that neither our firm M/s _____ nor any of its constituent partners have abandoned any work in India nor any contract awarded to us for such works has been rescinded during last five years, prior to the date of this bid.
- 3.0 The undersigned hereby authorize(s) and request(s) any bank, person, authorities, government or public limited institutions, firm or corporation to furnish pertinent information deemed necessary and requested by the SMC to verify our statements or our competence and general reputation.
- 4.0 The undersigned understands and agrees that further qualifying information may be requested and agrees to furnish any such information at the request of the SMC.
- 5.0 The SMC and its authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the statements, documents, and information submitted in connection with this application and to seek clarification from our bankers and clients regarding any financial and technical aspects. This Affidavit will also serve as authorization to any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and requested by yourselves to verify statements and information provided in the Tender or with regard to the resources, experience and competence of the Applicant.

Signed by the authorised signatory of the firm

Title of the office

Name of the firm

Date

Note: The affidavit format as indicated above to be furnished on non-judicial stamp Paper of Rs.300.

It is mandatory to submit the above Affidavit through online (by scanning) and in hard copy

ANNEXURE-IV

Details of Technical staff with tenderer

Sr. No.	Name of personnel	Qualification	Total experience	Who is proposed to be posted for this work

❖ **It is mandatory to submit the above list through online (by scanning)**

ANNEXURE-V

List of tools, plants and equipment's with tenderer (Format as per tenderer's choice)

- ❖ It is mandatory to submit the list of tools, plants and equipment's or supporting documents / certificates through online (by scanning).

ANNEXURE-VI

List of tools, plants and equipment's to be deployed by the tenderer for the work (Format as per tenderer's choice).

ANNEXURE-VII

UNDER TAKING BY THE TENDERER FOR NOT BLACK LISTED ON RS. 300/- GOVERNMENT STAMP PAPER

I/We Address Solemnly affirm and state that on oath that (Name of Tenderer) has not been black listed by any Government/Semi Government/Public Sector Undertaking/Public limited and not has been banned/suspended business dealings with the said firm.

The information given above is true to the best of my knowledge.

I/We agree that if any notice in future, my/our bid/tender shall be rejected/terminated.

SIGNATURE AND SEAL OF THE CONTRACTOR:

NAME AND ADDRESS:

DATE:

- ❖ It is mandatory to submit the above Affidavit through online (by scanning) and in hard copy.

ANNEXURE-VIII

Contractors Schedule for execution of work in the form of Bar chart

Sr. No.	Description of Activity	Start month and date and completion month and Date

ANNEXURE-IX

Structure and Organisation of the Company

1. Name of Applicant
2. Nationality of Applicant
3. Office Address
Telegraphic Address
Telephone No. (O) (M)
Telex No.
Fax No.
Email address:
4. Year and location of establishment
5. The Applicant is
 - a) An individual
 - b) A proprietary firm
 - c) A firm in partnership
 - d) A limited company or Corp.
(if a firm in partnership)
6. For how many years has your organization been in business of similar work under it's present name ? what were your fields when your organization was established?

Signature of Applicant.

Date :

5.0 ADDITIONAL INSTRUCTIONS TO THE TENDERERS

(For Drainage Works only)

1. The contractor shall take almost care during excavation to protect existing underground utilities. All water main lines / water connections, storm / sewage main / house connection, electricity cable, telephone cable, gas pipeline or any other utilities and structures shall be protected by the contractor. However, if met during excavation, any damage cause shall be rectified by the contractor at the earliest and all the rectification shall be borne by the contractor. If the bill for rectification work (if carried out by the concerned agencies / departments) is put by such agencies / department, the same shall be payable by the contractor, if not so it will be deducted and recovered from the running bills to be paid to contractor.
2. Contractor may construct manhole intermittently/before laying of lines. But in case if any manhole has to be abandoned due to any reason. Contractor has to bear the cost for the same.
3. The whole work of excavation, laying and jointing of pipes shall have to be carried out with the help of leveling instruments only. The leveling instrument to be used for the purpose shall be provided by the contractor. In no case the work shall be allowed to be carried out with help of boning rod.
4. THE LAYING OF R.C.C. PIPES SHALL BE STARTED FROM THE STARTING POINT TOWARDS THE TAIL END ONLY AND IN NO CASE ANY RELAXATION WILL BE ALLOWED IN THE MATTERS.
5. The contractor will have to construct shed for storing controlled and valuable materials like cement and other materials etc. purchased by the contractor or supplied by the department. The material will be taken for use in the presence of the Department person. No materials will be allowed to be removed from the site of work.
6. In view of the different position regarding the availability of foreign exchange, no foreign exchange would be released by Department for the purchase of plants and machineries required for the execution of the work contracted for.
7. No price escalation shall be paid in any case.
8. The surplus excavated earth, after backfilling the trenches shall have to be removed from the site as directed. However, surplus earth will be property of contractor and contractor may dispose off or stock the same as directed. The payment for the carting of surplus earth will be made separately.

After compaction and consolidation, if any short fall of earth is found then contractor has to bring the required quantity to meet shortfall at his own cost. More over, if any settlement of road after reinstatement is observed during the defect liability period of the work, Contractor shall be fully responsible for the defective work and patches/ depression/ settlement shall be repaired with quarry spoil or metal at contractor's own cost. If contractor fails to repair the patches/ depression /settlement in time, corporation will repair it at all risk and cost of contractor.

Surplus earth shall not be disposed off in a way that leads to nuisance to the public or SMC.

Executive Engineer
New East (Sarhana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

6.0 GENERAL CONDITION OF CONTRACT

GC-01 DEFINITIONS AND INTERPRETATIONS :

- 1.0 In the contract documents, as herein defined the following words and expression used shall, unless, repugnant to the subject or context thereof, have the following meanings assigned to them.
- 1.1 The "Owner/Municipal Corporation, Surat represented by Municipal Commissioner / City Engineer / Deputy Municipal Commissioner / Zonal Officer, any officer authorised by the Municipal Corporation.
- 1.2 The "Contractor" shall mean the person or the persons, firm of company whose tender has been accepted by the owner and includes his legal representative successors and permitted assignes.
- 1.3 The "Engineer-in-charge" shall mean the person designated as such by the owner from time to time and shall include those who are expressly authorised by the Municipal Corporation to act for and on its behalf for the operation of this contract.
- 1.4 "Engineer - in - charge's Representative" shall mean any Engineer or Asstt. to the Engineer-in-charge designated from time to time by the Engineer-in-charge to perform duties set forth in the Tender documents whose authority shall be notified in writing to the Contractor by the Engineer-in-charge.
- 1.5 "Tender" The offer or proposal of the Tenderer submitted in the prescribed form setting forth the prices for the work to be performed, and the details thereof.
- 1.6 "Contract Price shall mean total money payable to the Contractor under the contract documents.
- 1.7 "Addenda" shall mean the written or graphic notices prior to submission of tender which modify or interpret the contract documents.
- 1.8 "Contract Time" - The number of consecutive calendar months for the completion of work as stated in the executed contract agreement.
- 1.9 "Contract" shall mean agreements between the parties for the execution of works including therein all contract documents.
- 1.10 "Tender document" shall mean Designs, Drawings, specifications, agreed variations, if any, and such other documents constituting the tender and acceptance thereof.
- 1.11 "The Sub-Contractor" means any person, firm or company (other than the contractor) to whom any part of the work has been entrusted by the Contractor with the written consent of the Engineer-in-charge and the legal personnel representative, successors and permitted assigness of such person, firm or company.
- 1.12 The Specifications shall mean all directions' the various technical specifications provisions and requirements attached to the contract which pertain to the method and manner or performing the work to the quality of the work and the materials to be furnished under the contract for the work and any order(s) or instruction (a) the re under.
It shall also mean the latest Indian Standards Institution Specifications for or relative to the particular work or part thereof, so far as they are not contrary to the Tender specifications or I.S.I. specifications, and in absence of any tender specifications, the specifications of any other country applied INdia as a matter of Standard Engineering practice and approved in writing by the Engineer-in-charge with or without modifications.
- 1.13 The "Drawing" shall include maps, plans, tracings or prints thereof with any modifications approved in writing by the Engineer-in-charge and such other drawings,

- as may, from time to time, be furnished or approved in writing by the Engineer-in-charge in connection with the work.
- 1.14 The "Work" shall mean the works to be executed in accordance with the context or the part thereof as the case may be and shall include extra, additional altered or substituted works as required for the purpose of the Contract. It shall mean the totally of the work by expression or implication envisaged in the contract and shall include all material, equipment and labour required for or relative or incidental to or in connection with the commencement, performance and completion of any work and/or for incorporation in the work.
- 1.15 The "Permanent work "means works which will be incorporation in and form part of the work to be handed over to the owner by the contractor on completion of the contract.
- 1.16 The "Temporary Work" shall mean all temporary works of every kind required in or about the execution, completion and maintenance of the work.
- 1.17 "Site shall mean the land and other place on, under, on or through which the work is to be carried out and any other lands or places provided by the Municipal Corporation for the purpose of the Contract together with any other places designated in the Contract as forming part of the site.
- 1.18 "The Construction Equipment" means all appliance/equipments of whatever nature required in or for execution, completion or maintenance of work or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.
- 1.19 "Notice in Writing or Written Notice" means a notice written, types or printed form delivered personally or sent by Registered post to the latest know private of business address at Registered Office of the Contractor.
- 1.20 The "Alteration/Variation order" means an orders given in writing by the Engineer-in-charge to effect additions to or deletion from and alterations in the work.
- 1.21 "Final Test Certificate" shall mean the final test Certificate issued by the owner within the provisions of the Contract.
- 1.22 The "Completion Certificate" shall mean a certificate to be issued by the Engineer-in-charge when the work has been completed to his satisfaction.
- 1.23 The "Final Certificate" shall mean the final certificate issued by the Engineer-in-charge after the work is finally accepted by the owner.
- 1.24 "Defect Liability Period" shall mean the specified period between the issue of completion Certificate and the final certificate as specified in the tender.
- 1.25 "Approved" shall mean approved in writing including subsequent modification in writing of previous verbal approval and "Approval" means approved in writing including as aforesaid.
- 1.26 "Letter of Acceptance" shall mean an intimated by a letter to tenderer that the tender has been accepted in accordance with provisions contained therein.
- 1.27 "Order" and "Instruction" shall respectively mean any written order or instruction given by the Engineer-in- charge within the scope of his powers in terms of the Contract.
- 1.28 "Running Account Bill" shall mean a Bill for the payment of "On Account" money to the contractor during the progress of work on the basis of work done and the non-perishable materials to be incorporated in the work supplied by the Contractor.
- 1.29 "Security Deposit" shall mean the deposit to be held by the owner as security for the due performance of contractual obligations.
- 1.30 Retention Money shall mean the money retained from R.A.Bill for due completion of 'NET WORK'.

- 1.31 Unless otherwise specifically stated, the masculine gender shall include the feminine and natural genders and viceversa and the singular shall include the plural and vice-versa.

GC-02 LOCATION OF SITE AND ACCESSIBILITY :

The site of works is within the limits of Surat Municipal Corporation. It is served by all weather roads and Western Railway Broad Gauge line. The intending Tenderer should inspect the site and make himself familiar with site conditions and available communication facilities.

Non availability of access/roads shall in no case be the cause to condon any delay in the execution of the work or be the cause for any claims or extra compensation.

GC-03 SCOPE OF WORK :

The scope of work is defined broadly in the special conditions of Contract and specifications. The Contractor shall provide all necessary materials equipment and labour etc. for the execution and of the work till completion. All materials that go with the work shall be approved by the Engineer-in-charge prior to procurement and use.

Owner at his discretion may endeavour to provide water to the Contractor at the owner's source of supply at one point at the rate charged for such works.

The contractor shall make his own arrangement for the distribution pipe net works from the source of supply after getting prior permission for the same from the Engineer-in-charge. Supply of water shall not be free and the necessary charges as fixed by the Local Body shall have to be paid by the contractor.

However, owner does not guarantee the supply of water and this does not relieve the contractor of his responsibility in making his own arrangements and for the timely completion of the work as stipulated.

POWER SUPPLY :

The Contractor shall have to make his own arrangement for power supply.

LAND FOR CONTRACTOR'S FIELD OFFICE, GODOWN & WORKSHOP:

Owner will not be a position to provide land required for Contractors shall have to make his own arrangement for the same.

GC-04 RULLING LANGUAGE :

The language according to which the contractor shall be constructed and interpreted shall be English. All entries in the contract documents and all correspondence between the contractor and the Municipal Corporation or the Engineer shall be in English. All dimensions for the materials shall be given in metric units only.

GC-05 INTERPRETATION OF CONTRACT DOCUMENT :

1. The provisions of the General Conditions of Contract and special conditions of contract shall prevail over those of any other documents of the contract unless specifically provided otherwise. Should there be any discrepancy, inconsistency error or ommission in the several documents forming the contract, the matter may be referred to the Engineer-in-charge for his instructions and decision. The Engineer-in-charge's decision in such case shall the final and binding to the contractor.
2. Works shown upon the drawings but not described in the specifications of described in the specific specifications without showing on the drawings shall be taken as described in the specifications and shown on the drawings.
3. The heading and the marginal notes to the clauses of those general conditions of contract or to the specifications or to any other part of tender documents are solely

for the purpose of giving a concise indication and not a summary of contents thereof or be used in the interpretation or construction thereof of the contract.

4. Unless otherwise stated specifically, in this contract documents the singular shall include the plural and vice versa wherever the context so requires. Works implementing persons shall include relevant corporate companies / registered associations / body of individual / firm of partnership.
5. Notwithstanding the sub-divisions of the documents into separate sections and volumes every part of each shall be supplementary to and complementary of every other part and shall be read with and into the context so far as it may be practicable to do so.
6. Where any portion of the General Conditions of contract is repugnant to or a variance with any provisions of the special conditions of contract, then, unless a different intension appears, the provisions of the special conditions of contract shall be deemed to override the provisions of General conditions of Contract and shall to the extent of such repugnancy or variance prevail.
7. The materials, Design and Workmanship shall satisfy the relevant I.S.S. and Codes referred to. If Additional requirements are shown in the specifications, the same shall be satisfied over and above I.S.S. and Codes.
8. If the specification mention that the contract shall perform certain work or provide certain facilities, it will mean that the contractor shall do so at his own cost.

9. CONTRACTOR TO OBTAIN HIS OWN INFORMATION :-

The correctness of the details given in the tender documents is not guaranteed. The contractor shall independently obtain all necessary information for making the tender. The contractor shall be deemed to have examined Contract Documents, to have generally obtained his own information in all matters that might affect the carrying out of the work or the Tenderer rates. Any error in description of quantity or commission there from shall not vitiate the contract or release the contractor from executing the work comprised in the contract according to the Drawings and specifications at the tendered rates. He is deemed to have known the scope, nature and magnitude of the work and the requirements of materials and labour involved and as to what all works he has to complete in accordance with the contract whatsoever be the defects, omissions, or errors that may be found in the contract documents. The contractor shall be deemed to have visited the site and the surroundings, to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of railways, roads, bridges and culverts, means of transport and communications, whether by land, air or water and as to possible interceptions thereto and the access and agrees from the site, to have made inquires, examined and satisfied himself as to the sites for obtaining sand, stones, bricks and other materials, the sites for disposal of surplus materials, the available accommodation as to whatever required, the depicts and such other buildings as may be necessary for executing and completing the work, to have local independent inquiries as to the subsoil, subsoil water and variation thereof, storms, prevailing winds, climatic conditions and all other similar matters effecting the work. He is deemed to have acquainted himself as to his liability for payment of Government taxes, custom duty and other charges.

Any neglect or failure on the part of the contractor in obtaining necessary and reliable information upon the forgoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of

the work at the tendered rates and time in strict accordance with the contract documents.

No verbal agreement or inference from conversation with any officer or employee of the owner either before or after the execution of the Contract Agreement shall in any way effect or modify any of the terms of obligations herein contained.

GC-06 CONTRACTOR TO UNDERSTAND HIMSELF FULLY :

The contractor by tendering shall be deemed to have satisfied himself, as to consideration and circumstances affecting the tender price, as to the possibility of executing the works as shown and described in the contract and to have fixed his prices according to his own view on these matters and to have understood that no additional allowances except as otherwise expressly provided, will after words be made beyond the contract price. The contractor shall be responsible for any misunderstanding or incorrect information given in writing by the Engineer.

GC-07 ERROR IN SUBMISSION :

The contractor shall be responsible for any errors or omissions in the particulars supplied by him. Whether such particulars have been approved by the Engineer or not, provided that such discrepancies, errors or omissions be not due to inaccurate information or particular furnished in writing to the Contractor by the Municipal Corporation or the Engineer.

GC-08 SUFFICIENCY OF TENDER :

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness of the tender rates which rates shall, except as or otherwise provided for, cover all the Contractor's liabilities and obligation set forth or implied in the contract for the proper execution of work for compliance with requirements of Article GC-19 thereof.

GC-09 DISCREPANCIES :

The drawings and specifications are to be considered as mutually explanatory of each other, detailed drawings being followed in preference to small scale drawings and figures dimension in preference to scale and special conditions in preference to general conditions. Special direction or dimensions given in the specifications shall supersede all else. Should any discrepancies however, appear or should any misunderstanding arise as to the meaning and intent of the said specifications or drawings, or as to the dimensions or the quality of the materials or the due and proper execution of the works, or as to the measurement or quality and valuation of the works executed under this contract or as extra there upon the same shall be explained by the Engineer-in-charge and his explanation shall subject to the final decision of the Deputy Municipal Commissioner, in case reference be made to him, be binding upon the contractor shall execute the work according to such explanation (subject to aforesaid) and without addition to or deduction from the contract and shall also do all such works and things necessary for the proper completion of the works as implied by the Drawings and specifications, even though such works and things are not specially shown and described in said specifications. In cases where not particular specifications are given for any article to be used under the contract, relevant specifications of the Indian Standard Institution shall apply.

GC-10 PERFORMANCE GUARANTEE : (Security Deposit)

As a contract security the tenderer to whom the award is made shall furnish a performance guarantee (Security Deposit) for Capital work : 2% of Tender value after issuing Work Order & 2% from the running bills_to guarantee the faithful performance completion and maintenance of the works of the contract in accordance with all the conditions and terms specified herein and to the satisfaction of the Engineer and ensuring the discharge of all obligations arising from the execution of contract, in one of the forms mentioned below.

The total Security Deposit is 4% (Four) percent of contract value and shall be as under:

The successful tenderer shall have to pay initial security deposit at 2% (two) percent of the tendered amount.

- Initial Security Deposit (2%) shall be paid in form of Cash or Demand Draft/ Pay Order if the Tender Amount of work is **less than Rs. 2.00 crore.**
- Initial Security Deposit (2%) shall be paid in form of Cash or Demand Draft/ Pay Order / bank Guarantee (encashable at Surat city)/ FDR if the tender Amount of work is **more than Rs. 2.00 crore & 2.00 crore.**

The person/persons whose tender may be accepted [here-in after called the Contractor, which expression shall unless excluded by or repugnant to the context include his heirs, executors, administrators and assignees shall (within 15 days of the receipt by him of the notification of the acceptance of his tender) deposit with Municipal Commissioner cash or Government securities endorsed to the Commissioner sum sufficient which will make up the full security deposit specified in the tender.

If the amount of the security deposit to be paid in lump sum within the period specified above is not paid the tender contract already accepted shall be considered as cancelled. The security deposit lodged by Contractor shall be refunded after the expiry of the Defects Liability period as shown in the attached Memorandum after deducting dues, if any, which become liable to be recovered from the Contractor under the terms and conditions of this Agreement.

Regarding remittance and release of Security Deposit (SD), Retention money deposit (RMD) following clause will supersede over and above all the clauses depicted in the tender document.

Tender costing Less than Rs.2.00 Crore.

(a) Remittance of SD/RMD

- (i) The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2% of approved tender cost in form of Cash or Demand Draft/ Pay Order of any Nationalised Bank (encashable at Surat city).
- (ii) The remaining amount of the Security Deposit i.e. 2% to be deducted from each running account bill.

(iii) 5% Retention money deposit (RMD) to be retained from each running account bill.

(b) Release of SD/RMD

(i) The 2% Initial security deposit **in form of Cash or Demand Draft/ Pay Order** shall be released after clearance of Final bill by Audit Dept and completion of defect liability period.

(ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released along with Final Bills according to Work Quality..

(iii) 5% Retention money deposit (RMD) to be released along with final bill.

Tender costing Rs.2.00 Crore. & more than Rs.2.00 Crore.

(a) Remittance of SD/RMD

(i) The total security deposit shall be recovered at the rate of 4% from contractor. Out of which, 50% of amount as Initial Security Deposit shall be payable at the rate of 2% of approved tender cost in form of in Cash or Demand Draft/ Pay Order / FDR / Bank Guarantee of any Nationalised Bank (encashable at Surat city).

(ii) The remaining amount of the Security Deposit i.e. 2% to be deducted from each running account bill.

(iii) 5% Retention money deposit (RMD) to be retained from each running account bill.

(b 1) Release of SD/RMD

(i)The 2% Initial security deposit **in form Demand Draft /Pay order / FDR** shall be released after clearance of Final bill by Audit Dept & completion of defect liability period.

(ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released along with Final Bills according to Work Quality.

(iii) 5% Retention money deposit (RMD) to be released along with final bill.

(b 2) Release of SD/RMD

(i)The 2% Initial security deposit **in form Bank Guarantee** shall be released along with Final Bills according to Work Quality.

(ii) Whereas, the 2% security deposit recovered from the each running account bills Shall be released after clearance of Final bill by Audit Dept & completion of defect liability period.

(iii) 5% Retention money deposit (RMD) to be released along with final bill.

The amount recovered from the running bills as security deposit shall not be allowed to be transferred in the form of Bank Guarantee. However, the remaining 50% (2% of Security Deposit) of the amount so, deducted from running bills will be allowed for conversion in the form of interest bearing fixed deposit receipt, (FDR) issued in favour of the Municipal Commissioner, Surat Municipal Corporation, Surat by a Nationalized Bank located at Surat

only. Additional stamp duty payable as per government prevailing rule shall be paid by contractor for remittance of this FDR.

It is clarified that the amount of security deposit shall be collected on the basis of contract price and not on the basis of Estimated Amount put to tender. As initial Security Deposit as mentioned above, accepted by the competent Authority shall have to be paid toward Security Deposit at the time of execution of agreement.

Interest will be payable on FDR (that is deducted from Running Bill and converted in to FDR for initial SD) for One year, after completion of work. After that no further interest shall be paid for any extended period what so ever.

If the Security Deposit is not paid within 15 days from the date of L.O.I. / Work Order than penalty at the rate of 0.065% per day of the amount of Security Deposit will charged. If the Security Deposit is not paid within one month with interest, necessary actions as per condition of contract will be taken.

Initial Security Deposit (i.e. 2% Of Tender Amount) in form of Bank Guarantee may be accepted as per relevant tender provision, However BG shall be valid till final date of completion of work+1year (Whether final bill is audited and paid or not). It shall be contractor's responsibility to extent the BG On Or Before expiry of time limit of BG. In case of late renewal of BG, penalty of security deposit shall be levied at the rate of 0.065% of per day of BG amount.

The successful tenderer shall have to enter into an agreement on a non-judicial stamp paper of Rs. 300/- if initial Security Deposit paid in form Bank Guarantee or Demand draft as per the form of the agreement approved by the Municipal Corporation, Surat.

If initial Security deposit is paid in form of Fixed Deposit, additional stamp paper amounting As per government's prevailing rule of Security Deposit shall be used to execute the agreement.

The undertaking shall be executed on stamp paper worth Rs. 300/-.

The Surety shall be executed on stamp paper worth Rs. 300/-.

GC-11 INSPECTION OF WORK :

1. The Engineer in charge will have full power and authority to inspect the work at any time wherever in progress either on the site or at the contractor's any other manufacturers workshops or factories wherever situated and the contractor shall afford for Engineer-in-charge every facility and assistance to carry out such inspection. Contractor or his authorised representative shall, at all time during the usual working hours and all other times when so notified, remain present to receive orders and instructions, orders given to Contractor's representative shall considered to have the same force as if they had been given to the contractor himself. Contractor shall give not less than 7 days notice in writing to the Engineer-in-charge before covering up or otherwise placing beyond reach of inspection and measuring any work in order that the same may be inspected and measured. In the event of breach of the above, the same shall be recovered at Contractor's expenses for carrying out such inspection or measurement.

2. No material shall be dispatched from contract store on site of work before obtaining approval in writing of the Engineer-in-charge, Contractor shall provide at all time during the progress of work and maintenance period proper means of access with ladders, gangways, etc. and the necessary attendance to move and adopt as directed for inspection or measurement of work by Engineer-in-charge.

GC-12 DEFECT LIABILITY :

1. Contractor shall guarantee the work for a period of 12 months from the date of issue of completion certificate. Any damage or defect that may arise or that may remain undiscovered at the time of issue of completion certificate connected in any way with the equipment or materials supplied by him or in the workmanship be rectified or replaced by contractor at his own expenses as desired by Engineer-in-charge or in default may cause the same to be made good by other agency and deduct expenses of which the certificate of Engineer-in-charge shall be final from any sums that may then or any time thereafter become due to contractor of sale thereof or of a sufficient portion thereof.
2. From the commencement to completion of work contractor shall take full responsibility for the case of the work including all temporary works and in case any damage, less or injury shall happen to work or any part thereof or to any temporary works from any cause whatsoever and shall at his own cost repair and make good the same so that at completion work shall be in good order and in conformity in every respect with the requirements of contract and as per the instructions of the Engineer-in-charge.
3. If at any time before the work is taken over, the Engineer-in-charge shall -
 - (a) Decide that any work done or materials used by the contractor are defective or not in accordance with contract or that work of any portion thereof is defective or do not fulfill the requirements of contract (all such materials being hereinafter called defects in this clause and (b) as soon as reasonably practicable given to contractor notice in writing of the said defect specifying particulars of the defects alleged to exist or to have occurred, then contractor shall at his own expenses and with all speed make good the defects so specified.
 - (b) In case contractor fails to do so, owner may take at the cost of the contractor, such steps as may in all circumstances, be reasonable to make good such defects. The expenditure so incurred by S.M.C. will be recovered from the amount due to contractor. The decision of Engineer-in-charge with regard to the amount to be recovered from contractor will be final and binding on the contractor.

GC-13 POWER OF ENGINEER TO GIVE FURTHER INSTRUCTIONS :

The Engineer shall have the power and authority from time to time and at all times to give further instructions and directions as may appear to him necessary or proper for the guidance of contractor and the works and efficient execution of the works according to the terms of the specifications, and the contractor shall receive, execute, obey and be bound by the same, according to the true intent and meaning thereof, as fully and effectually as though the same had accompanied or had been mentioned or referred to in the specifications. No work which radically changes the original nature of the contract shall be ordered by the Engineer and in the event of any deviation being ordered, which in the opinion of the contractor changes the original nature of the contract, the shall nevertheless carry it out and any disagreement as to the nature of the work & the rate to be paid thereof shall be resolved. The time of completion of works, in the event of any deviations, resulting in additional cost over the contract

sum being ordered, then be extended or reduced reasonable by the Engineer. The Engineer's decision in the case shall be final and binding.

GC-14 PROGRAMME :

The time allowed for execution of works shall be essence of the contract. The contract period shall commence from date of Notice of intimation to proceed. The tenderer at the time of submitting his tender shall indicate the construction schedule, the month-wise programme required for the execution of the works and shall confirm the same within fourteen (14) days of the acceptance of his Tender. The contractor shall provide to the Engineer-in-charge a detailed programme of time schedule for execution of the works in accordance with the specifications & the completion date. The entire programme to be finalised by the Contractor, has to confirm to the execution period mentioned alongwith the Bill of Quantities in the Tender Documents. The Engineer upon scrutiny of such submitted programme by contractor, shall examine suitability of it to the requirement of contract and suggest modifications, if found necessary.

GC-15 SUBLETTING OF WORKS :

No part of the contract nor any share or interest thereon shall in any manner or degree be transferred, assigned or sublet by the contractor directly or indirectly to any firm or Corporation whatsoever except as provided for in the succeeding subclause without the consent in writing of the owner.

GC-16 SUB-CONTRACTORS FOR TEMPORARY WORKS ETC. :

The owner may give written consent to sub-contractors for execution of any part of the work at the site being entered upon by the contractors provided each individuals contractor is submitted to the Engineer-in-charge before being entered into and in approved by him. List of Sub-Contractors is to be supplied. Not with standing any subletting with such approval as aforesaid and not with standing the Engineer-in-charge shall have received copies of any sub-contractors, the contractors shall be and shall remain solely responsible for the quality and proper expenditures and execution of the works and the performance of all the conditions of contract in all respects as if such submitting or sub-contracting had not taken place and as if such work had done directly by the Contractor.

GC-17 TIME FOR COMPLETION:

1. The work covered under this contract shall be commenced from the date of contractor is served with a notice to proceed with the work and shall be completed before the date as mentioned in the time schedule of work. The time is the essence of the contract and unless the same is extended as mentioned in clause No. GC-18 (Extension of time) the contractor will be penalised for the delay.
2. The general time schedule for construction is given in the tender document. Contractor shall prepare a detailed weekly or monthly construction programme in consultation with Engineer-in-charge soon after the agreement and the work shall be strictly executed accordingly. The time for construction given includes, the time required for testing, rectification if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-charge.

GC-18 EXTENSION OF TIME :

Time shall be considered as the essence of the contract. If however, the failure of the Contractor to complete the work as per the stipulated dates referred to above arises from delays on the part of Municipal Corporation in supplying the materials of equipment it has undertaken to supply under the contract or from delays in handing over sites or from increase in the quantity of work to be done under the contract, or force Majeure an appropriate extension of time will be given. The Contractor shall request such extension within one month of the cause of such delay and in any case before expiry of the contract period.

GC-19 CONTRACT AGREEMENT :

The successful tenderer shall when called upon to do so, enter into and execute the Contract Agreement within (10) ten days of the Notice of Award, in the form shown in tender documents with such modifications as may be necessary in the opinion of the Municipal Commissioner. It should be incumbent on the contract to pay the stamp duty and the legal charges for the completion of the contract agreement.

GC-20 A. PENALTY FOR DELAY :

If the contractor fails to complete the work within the stipulated completion date for the work or he shall pay liquidated damages at Two tenth of one percent of contract value per day of delay in completion and handing over the work or part thereof as the case may be to the Municipal Commissioner. The amount of liquidated damages shall, however, be subjected to a **maximum of ten (10) percent of the contract value**. Delays in excess of one hundred days will be a cause for termination of the contract and forfeiture of all security for performance.

B. BAR CHART:

The successful tenderer shall have to submit the progress bar-chart within fifteen days after the contract, and the contractor should work as per the approved bar-chart, failing the contractor shall have to pay the compensation for delay as per the decision of Municipal Commissioner.

GC-21 FORFEITURE OF SECURITY DEPOSIT :

Whenever any claim arises against the contractor for the payment of a sum of money out of or under the contract, the owner shall be entitled to recover such sum by appropriating in part or whole, the security deposit of the contractor. In case the Security deposit is insufficient the balance recoverable shall be deducted from any sum then due or which at any time thereafter may become due to the contractor shall pay to the owner on demand may balance remaining due.

GC-22 ACTION OF FORFEITURE OF SECURITY DEPOSIT :

In any case in which under any clause or clauses of the contract, the contractor shall have forfeited the whole of his Security deposit or have committed a breach of any of the terms contained in this contract, the owner shall have power to adopt any of the following courses as he may deem best suited to his interest -

- (a) To rescind the contract (of which rescission notice in writing to the contractor under the hand of the owner shall be conclusive evidence) in which case, the security deposit of the contractor shall stand forfeited and be absolutely at the disposal of the owner.

- (b) To employ labour and to supply materials to carry out the balance work debiting contractor with the cost of labour employed and the cost of materials supplied for which a certificate of the Engineer-in-charge shall be final and conclusive against the contractor and 10% costs on above to cover all departmental charges and crediting him with the value of work done at the same rates as if it has been carried out by the contractor under the terms of his contract. The certificate of Engineer-in-charge as to the value of the work done shall be final and conclusive against the contractor.
- (c) To measure up the work of the contractor and to take such part hereof as shall be unexecuted out of his hand to give it to another contractor to complete. In this case the excess-expenditure incurred than what whole have been paid to the original contractor, if the said work had been executed by him, shall be earnest and paid by the original contractor and shall be deducted from any money due to him by the owner under the contract or otherwise and for the excess expenditure, the certificate of the Engineer-in-charge shall be final and conclusive.
- In the event any of the above course being adopted by the owner, the contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any agreement so or made by advance on account of or with a view to the execution of the work of the performance of the contract. In such case the contractor shall not be entitled to recover or be paid by sum for any work actually performed under this contract unless the Engineer-in-charge will certify in writing the performance of such work and the value payable in respect thereof and the shall only be entitled to be paid the value so certified. In the event of the owner putting in force the powers as stated in a, b, c, above vested in him under the proceeding clause, he may, if he so desire, take possession of all or any tools and plant, materials and stores in or upon the work or the 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 paying or allowing for the same in account at the contract rates to be certified by the Engineer-in-charge whose certificate thereof shall be final otherwise the Engineer-in-charge may give notice in writing to the contractor or his representative requiring him to remove such tools plant materials or stores from the premises within the time specified in the notice and in if the contractor fails to comply with any such notice, the Engineer-in-charge may remove them at the Contractor's expenses or sell them by auction or private sale on account of the contractor and his risks in all respects without any further notice as to the date, time to place of the sale and the certificate of Engineer-in-charge as to the expenses of any such removal and the amount of the proceeds and the expenses of any such sale shall be final and conclusive against the contractor.

GC-23 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK :

If at any time from the commencement of work, the owner shall for any reasons whatsoever not require the whole or part thereof as specified in the tender to be carried out, the Engineer-in-charge shall give notice in writing of the contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from execution of work in full, but which he did not derive in consequence of the full amount of the work not having been carried neither shall he have any claim for compensation by reason if any alternations having been made in original specifications, drawings, designs and

instructions which shall involve any curtailment of the work as originally contemplated.

When the contractor is a partnership firm, the prior approval in writing of the S.M.C. shall be obtained before any change is made in the constitution of the firm, where the contractor is an individual or a Hindu Undivided Family business concern, such approval as aforesaid shall, likewise be obtained before sub-contractor enters into any agreement with other parties where under the reconstituted firm would have the right to carry out the work hereby undertaken by the contractor. In either case if prior approval as aforesaid is not obtained, the contract shall be deemed to have been allotted in contravention of subletting clause hereof and the same action may be taken and the same consequence shall ensure as provided in the subletting clause.

GC-24 IN EVENT OF DEATH OF CONTRACTOR :

Without prejudice to any of the right or remedies under the contract, if the contractor dies, the owner shall have the option of terminating the contract without compensation to the contractor.

GC-25 MEMBER OF THE OWNER NOT INDIVIDUALLY LIABLE :

No official or employee of the owner shall in any way be personally bound or liable for the acts or obligations of the owner under the contract or answerable for any default or omission in the observance or performance of the acts, matters or things which are herein contained.

GC-26 OWNER NOT BOUND BY PERSONAL REPRESENTATIONS :

The contractor shall not be entitled to any increase on the Schedule of rates or any other rights or claims whatsoever by reason of representation, explanation or statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

GC-27 CONTRACTOR'S OFFICE AT SITE :

The Contractor shall provide and maintain an office at the site for the accommodation of his agent and staff and such office shall be opened at all reasonable hours to receive instructions, notice or other communications.

GC-28 CONTRACTOR'S SUBORDINATE STAFF AND THEIR CONDUCT :

1. The contractor on award of the work shall name and depute a qualified Engineer, having experience of carrying out work of similar nature, to whom equipments, materials, if, any, shall be issued and instructions for work given. The contractor shall also provide to the satisfaction of Engineer in-charge sufficient and qualified staff to superintend the execution of the work, competent sub-agents, foremen and leading hands including those specially qualified by previous expeditions to supervise the type of works comprised in the contract in such manner as will ensure work of the best quality and expenditures working, it, in the opinion of the Engineer-in-charge, additional properly qualified supervision staff is considered necessary, if shall be employed by the contractor without additional charge on account thereof. The contractor shall ensure to the satisfaction of the Engineer-in-charge that sub-contractors, it any shall provide competent and efficient supervision over the work entrusted to them.
2. If and whenever any of the contractor's or sub-contractor agents, sub-agents, assistance, formen or other employees shall, in the opinion of Engineer-in-charge,

be guilty of any misconduct or be incompetent or insufficiently qualified or intelligent in the performance of their duties or that in opinion of the owner or Engineer-in-charge, it is undesirable for administrative or any other reason for person or persons to be employed in the works, the contractor, if so directed by the Engineer-in-charge, shall at once remove person or persons from employment thereon. Any person or persons so removed shall not again be reemployed in connection with the works without the written permission of the Engineer-in-charge. Any person so removed from the works shall be immediately replaced at the expenses of the contractor by acqualified and competent substitute. Should the contractor be required to repatriate any person removed from the works he shall do so and shall bear all costs in connection therewith.

3. The contractor shall be responsible for the proper behaviour of all the staff, foremen, workmen and others shall exercise proper control over them and in particular and without prejudice to the same. Generally, the contractor shall be bound to prohibit, and prevent any employee from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighbourhood and in the event of such employees so trespassing, the contractor shall be responsible therefore and relieve the owner of all consequent claims, actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-charge upon any matter arising under this clause shall be final.
4. If and required by the owner, the contractor's personnel entering upon the owner's premises shall be properly identified by badges of a type acceptable to the S.M.C. which must be worn at all times on owner's premises.

GC-29 TERMINATION OF SUB-CONTRACTOR BY OWNER :

If any sub-contractor engaged upon the works at the site executes any work which in the opinion of Engineer-in-charge is not in accordance with the contract documents, the S.M.C. may be give written notice to the contractor request his to terminate such sub-contract and the contractor upon the receipt of such notice shall terminate such sub-contract and the letter shall forthwith leave the works failing which the owner shall have the right to remove such sub-contractors from the site.

No action taken by the owner under the above clause shall relieve the contractor of his liabilities under the contract or give rise to any right to compensation, extension of time or otherwise.

GC-30 POWER OF ENTRY :

If the contractor shall not commence the work in the manner previously described in the contract documents or if he shall, at any time, in the opinion of Engineer-in-charge.

- (i) Fail to carry out works in conformity with the documents or
- (ii) Fail to carry out the works in accordance with the time schedule.
- (iii) Substantially suspend work or the works for a period of fourteen days without authority from Engineer-in-charge or
- (iv) Fail to carry out and execute the work to the satisfaction of the Engineer-in-charge or
- (v) Fail to supply sufficient or suitable construction plant temporary works, labour materials or things or
- (vi) Commit breach of any other provisions of the contract on his part to be performed or observed or persist in any of the above mentioned breached of

the contract for fourteen days after notice in writing shall have been given to the contractor by the Engineer-in-charge requiring such breach to be remedied or

- (vii) Abandon the work or
- (viii) During the continuance of the contract becomes bankrupt, make any arrangement or compromise with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case.

The owner shall have the power to enter upon the works and take possession thereof and of the materials, temporary works, constructional plant and stock therein, and to revoke the contractor's licence to use the same and to complete the works by his agents, other contractor or workman or to relate the same upon any terms and to such other person, firm or corporation as the owner in his absolute discretion may think proper to employ, and for the purpose aforesaid to use or authorise the use of any materials, temporary works, constructional plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said materials other than such as may be certified in written by the Engineer-in-charge to be reasonable and without making any payment or allowance to the contractor for the use of said temporary works, constructional plant and stock or being liable for any loss or damage thereto. If the owner shall be reason of his taking possession of the works or of the work being got completed by other contractor incur excess certified by the Engineer-in-charge shall be deducted from any money which may be due for the work done by the contractor under the contract and not paid for. Any deficiency shall forthwith be made good and paid to the owner by the contractor and the owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plant, materials etc. constructed by or belonging to and recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

GC-31 CONTRACTOR'S RESPONSIBILITY WITH THE OTHER CONTRACTOR & AGENCIES:

Without repugnance to any other condition, it shall be the responsibility of the contractor executing the work of civil construction to work in close co-operation and co-ordinate the work with other contractors or their authorised representative and the contractor will put a joint scheme with the concurrence of other contractors showing the arrangements for carrying his portion of the work to the Engineer-in-charge and get the approval. The Engineer-in-charge before approving the joint scheme will call the parties concerned and modify the scheme if required. No claim will be entertained on account of the above. The contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or by laws of any local or locally constituted authorities or public bodies which may be applicable from time to time to works or any temporary works. The contractor shall keep the owner indemnified against all penalties and liabilities of every kind arising out of non-adherence to such statutes, ordinance, laws, rules, regulations, etc.

GC-32 OTHER AGENCIES AT SITE :

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works, such as site grading, filling and levelling, electrical and mechanical engineering works, etc. No claim shall be entertained for works being executed in the above circumstances.

GC-33 NOTICES :

Any notice under this contract may be served on the contractor or his duly authorised representative at the job site or may be served by registered post direct to the official address of the contractor proof of issue of any such notice could be conclusive of the contractor having been duly informed of all contents therein.

GC-34 RIGHT OF VARIOUS INTERESTS :

The owner reserves the right to distribute the work between more than one contractor. Contractor shall co-operate and afford reasonable opportunity to other contractors for access to the works for the carriage and storage of materials and execution of their works.

Wherever the work being done by any department of the owner or by other contractor employed by the owner is contingent upon work covered by this contract, the respective rights of the various interests shall be determined by Engineer-in-charge to secure the completion of various portions of the work in general harmony.

GC-35 PRICE ADJUSTMENT :

No adjustment in price shall be allowed as time for completion of the project is One year only.

GC-36 TERMS OF PAYMENT :

The payment of Bills shall be made progressively according to the rules and practice followed by the Municipal Corporation. The progressive payment unless otherwise provided in the Contract Agreement or subsequently agreed to by the parties, shall be made generally monthly on submission of a bill by the Contractor in prescribed form in an amount according to the value of the work performed less the aggregate of previous progressive payments and as required by clause GC-37 (Retention money) herein. All such progressive payment shall be regarded as payment by way of advance against final payment.

Payment for the work done by the contractor will be based on the measurement at various stages of the work, in accordance with the conditions at Clause GC-78 (Measurement of Work in Progress)

GC-37 RETENTION MONEY :

Pursuant to Clause GC-36 Terms of Payment) on all money due to the contractor for work done, Municipal Corporation will hold as retention money of Seven percent (7%) of the value of work. The retention money will not normally be due for payment until the completion of the entire work and till such period the work has been finally accepted by the Municipal Corporation and completion certificate issued by the Municipal Corporation in pursuant to Clause No.GC-84 (Completion Certificate).

However, after the issuance of completion certificate, and Municipal Commissioner may at its own discretion and having considered the Contractor's performance and diligence during the contract time allow the retention money to be converted into a Bond as stipulated in the Clause GC-10 (Performance Bond Security Deposit).

GC-38 PAYMENT DUE FROM THE CONTRACTOR :

All costs, damages or expenses, for which under the Contract the Contractor is liable to the Municipal Corporation deducted by the Municipal Corporation from any money due or becoming due to the Contractor under the contract or from any other contract

with the Municipal Corporation or may be recovered by action at law or other-wise from the Contractor.

GC-39 CONTINGENT FEE :

1. The Contractor warrants that he has not employed any person to solicit or secure the contract upon any agreement for a commission, percentage, brokerage or contingent fee. Breach of this warranty shall give the Municipal Commissioner the right to cancel the contract or to take any other measure as the Municipal Commissioner may deem fit. The warranty does not apply to commissions payable by the contractor to establish commercial or selling agent for the purpose of securing business.
2. No officer, employer of the Municipal Corporation be admitted to any share or part of this contract or to any benefit that may rise there from.

GC-40 BREACH OF CONTRACT BY CONTRACTOR :

If the contractor fails to perform the work under the contract with due diligence or shall refuse or neglect to comply with instruction given to him in by the Engineer-in-charge accordance with the contract, or shall contravene the provisions of the contract, the S.M.C. may give notice in writing to the contractor to make good such failure, neglect or contravention. Should the Contractor fail to comply with such written notice within twenty eight (28) days or receipt, if the Municipal Commissioner shall think fit, it shall be lawful for the Municipal Corporation, without prejudice to any other rights, the contractor may have under the contract, to terminate the contract for all or part of the works, and to make any other arrangements it shall deem necessary to complete the work outstanding under the contract at the time of termination. In this event Article GC-15 (Subletting of work) and GC-16 (Sub-Contracts for Temporary Works etc.) hereof shall be invoked and the performance Bond shall immediately become due and payable to the Municipal Commissioner the value of the work done on the date of termination and not paid for shall stand forfeited to the Municipal Corporation and the Municipal Corporation shall have free use of any works which the contractor may have at the site at the time of termination of the contract.

GC-41 DEFAULT OF CONTRACTOR :

1. The Municipal Corporation may upon written notice of default to the contractor terminate the contract in circumstance detailed hereunder :
 - (a) If in the judgement of the Municipal Corporation the contractor fails to make completion of works within the time specified in the completion schedule or within the period for which extension has been granted by the Municipal Corporation/Engineer to the Contractor.
 - (b) If in the judgement of the Municipal Corporation the contractor fails to comply with any of the provisions of this contract.
2. In the event the Municipal Commissioner terminates the contract in whole or in part as provided in Article GC-49 (Termination of Contract), the Municipal Corporation reserves the right to purchase upon such terms and in such manner as it may deem appropriate, plant similar to that terminated and the contractor will be liable to the Municipal Corporation for any additional costs for such similar and / or for liquidated damaged for delay until such reasonable time as may be required for the final completion of works.
3. If this contract is terminated as provided in this paragraph GC - 30 (Power of entry) (1) the Municipal Corporation in addition to any other rights provided in

this clause, may require the Contractor to transfer title and deliver to the Municipal Corporation under any of the following cases in the manual and as directed by the Municipal Corporation.

(a) Any partially completed information and contract rights as the contractor has specifically produced or acquired for the performance of the contract so terminated.

4. In the event the Municipal Corporation does not terminate the contract as provided in the paragraph GC-49 (Termination of Contract) the Contractor shall continue performance of the contract, in which case the shall be liable to the Municipal Corporation for liquidated damages for delay until the works are accepted.

GC-42 BANKRUPTCY :

If the Contractor shall become bankrupt or insolvent or have a receiving order made against him, or compound with the creditors, or being the Municipal Corporation commence to be wound up, not being a member's Voluntary winding up for the purpose of amalgamation or reconstruction, or carry on its business under a receiver for the benefit of his creditors or any of them, the owner shall be at liberty to either (a) terminate the contract forthwith by giving notice in writing to the contractor or to the receiver or liquidator or to any person or organisation in whom the contract may become vested and to act in the manner provided in Article GC-41 (Default of Contractor) as though the last mentioned notice had been the notice referred to in such Article of (b) to give such receiver liquidator or other person in work the contract may become vested the option of carrying out the contract subject to his providing a satisfactory guarantee for the due and faithfully performance of the contract subject to his providing a satisfactory guarantee for the due and faithful performance of the contract upto an amount to be agreed. In the event that the Municipal Corporation terminates the Contract in accordance with this article, the performance Bond shall immediately become due and payable on demand to Municipal Contractor.

GC-43 OWNERSHIP :

Works supplied pursuant to the Contract shall become the property of the Municipal Corporation from whichever is the earlier of the following times, namely,

- (a) When the works are completed pursuant to the Contract.
- (b) When the Contractor has been paid any sum to which he may become entitled in respect thereof pursuant to clause GC-36 (Terms of Payment).

GC-44 DECLARATION AGAINST WAIVER :

The condonation by the Municipal Corporation of any breach of branches by the stipulations and conditions contained in the contract shall in no way prejudice or effect to the constructed as a waiver of the Municipal Corporation rights, powers and remedies under the contract in respect of any breach or breaches.

GC-45 LAWS GOVERNING THE CONTRACT :

The contract shall be constituted according to and Subject to the laws of India and the State of Gujarat and under the jurisdiction of the courts of Gujarat at Surat.

GC-46 OVERPAYMENT AND UNDERPAYMENT :

Whenever any claim forths payment of a sum to the Municipal Corporation arises out of or under this Contract against the contractor the same may be deducted by the

Municipal Corporation from any sum then due or which at any time thereafter may become due to the contractor under this contract and failing that under any other contract with the Municipal Corporation or from any sum due to the contractor with the Municipal Corporation (which may be available with Municipal Corporation), or from his retention money, or he shall pay the claim on demand. The Municipal Corporation reserves the right to carry out post payment audit and technical examination of the final bill including all supporting vouchers, abstracts, etc.

The Municipal Corporation further reserves the right to enforce recovery of any over payment when detected notwithstanding the fact that the amount of the final bill may be included by one of the parties as an item of dispute before an Arbitrator appointed under Article GC - 49 of this contract and notwithstanding the fact that the amount of the final bill figure in the award.

If as a result of such audit and technical examination any over payment is discovered in respect of any work done by the Contractor or alleged to have been done by him under the contract, it shall be recovered by the Municipal Corporation from the contractor by way of all the means prescribed above or if any under payment is discovered by the Municipal Corporation, any amount due to the contractor under this contract or under payment may be adjusted against any amount then due or which may at any time thereafter become due before payment is made to the contractor from him to the Municipal Corporation on any other contract account whatsoever.

GC-47 SETTLEMENT OF DISPUTES :

Except or otherwise specifically provided in the contract, all disputes concerning questions of fact arising under the contract shall be decided by the Engineer, subject to a written appeal by the Contractor to the Engineer, and these decisions shall be final and binding on the parties hereto. Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible settled amicably between the parties.

GC-48 DISPUTES OF DIFFERENCE TO BE REFERRED TO :

Disputes if any, shall be discussed and mutually settled and in case of disagreement the same shall be referred to Commissioner/Standing Committee. After referring to Commissioner / Standing Committee if the said dispute is not solved, the same shall be referred to the court subject to Surat Jurisdiction only.

GC-49 TERMINATION OF THE CONTRACT :

1. If the Contractor finds it impracticable to continue operation owing to Force Majeure reasons or for any reason beyond his and/or the Municipal Commissioner find site impossible to continue operation when prompt notification in writing shall be given by the party affected to the other.
2. If the delay or difficulties so caused can not be expected to cease or become unavoidable or if operations can not be resumed within six (6) months the party shall have the right to terminate the contract upon Ten (10) days written notice to the other. In the event of such termination of the contract, payment to the Contractor will be made as follows :
 - a) The Contractor shall be paid for all works approved by the Engineer and for any other legitimate expenses due to him.
 - b) If the Municipal Commissioner terminates the contract owing to Force Majeure or due to any cause beyond its control, the contractor shall additionally be paid for any work done during the said Six (6) months period

- including any financial commitment made for the proper performance of the Contract and which are not reasonable defrayed by payment under (a) above;
- c) The Municipal Commissioner also release all bonds and guarantees at its disposal except is cause where the total amount of payments made to the contractor exceeds the final amount due to him in which case the contractor shall refund the excess amount within Sixty (60) days after termination and the Municipal Commissioner thereafter shall release all bonds and guarantees, should the contractor fail to refund the amount received in excess within the said period such amounts shall be deducted from the bonds or guarantees provided.
3. On the termination of the contract for any cause the contractor shall see the orderly suspension and termination of operations, with due consideration to the interests of the Municipal Corporation with respect to completion, safeguarding or storing of materials procured for the performance of the contract and the salvage and resale thereof.

GC-50 CHANGES IN CONSTITUTION :

Where the contractor is a partnership firm, the prior approval in writing of the Municipal Commissioner shall be obtained any change is made in the constitution of the firm. Where the contractor is an individual or an undivided family business concern such approval as aforesaid shall like wise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If prior approval as aforesaid is not obtained the contract shall be deemed to have been assigned in contravention of Article thereof.

GC-51 SUB-CONTRACTUAL RELATIONS :

All work performed for the contract by sub-contractor shall be pursuant to an appropriate agreement between the contractor and sub-contractor which shall contain provisions to :

- a) Protect and preserve the rights of the Municipal Corporation and the Engineer with respect to the work to be performed under the sub-contract so that the sub-contractor thereof will not prejudice such rights.
- b) Require that such work be performed in accordance with requirements of the Contract documents.
- c) Require under such contract of which the contractor is a party, the submission to the contractor of application for payment and claims for additional costs, extension of time, damages for delay or otherwise with respect to the sub-contracted portions of the work in sufficient time, that the contractor may apply for payment and comply in accordance with the contract Documents for like claim by the Contractor upon the Municipal Corporation.
- d) Waive all rights the contracting parties may have against one another for damages caused by fire or other perils covered by the property insurance except such rights as they may have to the proceeds so such insurance held by the Municipal Corporation as trustee and,
- e) Obligate each sub-contractor specifically to consent to the provisions of this Article.

GC-52 LIEN :

If, at any time, there should be evidence of any lien or claim for which owner might have become liable and which is chargeable to the contractor, the owner shall have the right to retain out of any payment then due or thereafter to become due an amount sufficient to completely indemnify the owner against such lien or claim or if such lien or claim be valid the owner may be or become due and payable to the contractor. If any lien or claims remaining, unsettled after all payments are made, the contractor shall refund or pay to the owner all money that the latter may be compelled to pay in discharging such lien or claim including all cost and reasonable expenses.

GC-53 EXECUTION OF WORK :

The whole work shall be carried out in strict conformity with the provisions of the Contract Documents, detailed drawings, specifications and the instructions of the Engineer-in-charge from time to time. The Contractor shall ensure that the whole work is executed in the most substantial, proper and best workmanship using materials of best quality in strict accordance with the specifications to the entire satisfaction of the Engineer-in-charge.

GC-54 WORK IN MONSOON :

When the work continues in monsoon, the contractor shall maintain minimum labour force required, for the work and plan and execute the construction and erection work according to the prescribed schedule. No extra rate will be considered for such work in monsoon. During monsoon and entire constructing period the contractor shall keep the site free from water at his own cost.

GC-55 WORK CLOSED ON SUNDAYS & HOLIDAYS AND BETWEEN SUNSET AND SUNRISE:

No work shall be carried out on Sundays and Corporation Holidays and no work shall be carried out between sunset and sunrise. Except with the special permission of Engineer-in-charge in writing previously obtained and with holding such permissions shall be no ground of complaint on the part of contractor or cause for compensation to them. Working period shall be maximum eight (8) hours per days.

GC-56 EXTRA SUPERVISION CHARGES TO BE BORNE BY CONTRACTOR :

Further to clause No. GC-55 when Engineer-in-charge feels necessary to give permission to contractor for carrying out work for period of more than Eight hours working period in a day and/or to continue work on Sunday and Corporation holidays. Extra Supervision charges arising due to overtime working of Corporation's staff shall be borne by the contractor at prevailing rates from time to time. Such extra supervision charges shall be deducted by Corporation from the running bill/s of the contractor at Surat Municipal Corporation's description.

GC-57 DRAWING TO BE SUPPLIED BY THE OWNER :

The drawings attached with the tender documents shall be for general guidance of the contractor to enable him to visualise the type of work contemplated and scope of work involved. Detailed working drawings according to which the work is to be done shall be furnished from time to time as the work progresses. The contractor shall study the drawings thoroughly in connection with other connected details and discrepancy if any bring to the notice of the Engineer-in-charge before actually carrying out the work.

GC-58 DRAWINGS TO BE SUPPLIED BY THE CONTRACTOR :

Where drawings, date are to be furnished by the contractor they shall be as enumerated in special condition of contract and shall be furnished within the specified time. Where approval of drawings has been specified it shall be the Contractor's responsibility to have these drawings got approved before any work is taken up with regard to the same. Any changes becoming necessary in these drawings during the execution of the work shall have to be carried out by the contractor at no extra cost. All final drawings shall bear the certification stamp as indicated below duly signed by both the contractor and Engineer-in-charge.

"Certified true for

_____project

Agreement No. _____

Signed _____
Contractor Engineer-in-charge

Drawings will be approved within three (3) weeks of the receipt of the same by the Engineer-in-charge.

GC-59 SETTING OUT WORK :

The contractor shall set out the work on the site handed by the Engineer-in-charge and shall be responsible for the correctness of the same. The work shall be carried out to the entire satisfaction of Engineer-in-charge. The approval thereof or partaking by Engineer-in-charge in setting out work shall not relieve contractor of any of his responsibilities.

The contractor shall provide at his own cost all necessary level posts, pegs, bamboos, flage, ranging, rods, strings and other materials and labourers required for proper setting out of the work. The Contractor shall provide, fix and be responsible for the maintenance of all stakes, temples level marks profiles and similar other things and shall take and necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence for such removal or disturbance. The contractor shall also be responsible for the maintenance of all existing Survey Marks, Boundary Marks, Distance Marks and Centre line marks either existing or fixed by the Contractor. The Centre, longitudinal or face lines and cross lines shall be marked by small masonry pillars. Each pillar shall have distance mark at the centre for setting up the theodolite. The work shall not be started unless the setting out is checked by Engineer-in-charge in writing but such approval shall not relive the contractor of his responsibilities. The contractor shall provide all materials, labour and other facilities necessary for checking at his own cost.

Pillars bearing geodetic marks on site shall be protected by the Contractor. On completion of the work the contractor shall submit the Geodetic documents according to which the work has been carried out.

GC-60 RESPONSIBILITIES OF CONTRACTOR FOR CORRECTNESS OF WORK:

The contractor shall be entirely and exclusively responsible for the correctness of every part of the work and shall rectify completely and errors thereon at his own cost when so instructed by Engineer-in-charge.

1. Materials to be supplied by Contractor :
Contractor shall procure and provide all the materials required for the execution and maintenance of work including M.S. rods, all tools, tackle, construction plant and equipment except the materials to be supplied by the owner detailed in the contract documents and for the transport thereof, owner, shall made recommendations to the respective authorities if designed by the contractor but assumes no responsibility or any nature. Owner shall insist for procurement of materials with ISI Marks supplied by reputed firms on the DGS & D List.
2. If however the Engineer-in-charge feels that work is likely to be delayed due to contractor's inability to procure the materials, the Engineer-in-charge shall have the right to procure materials from the market and the contractor will accept these materials at the rates decided by Engineer-in-charge

GC-61 MATERIALS TO BE SUPPLIED BY THE OWNER :

1. If the contract provides certain materials or stores to be supplied by the S.M.C. such materials and stores shall be transported by the contractor at his cost from S.M.C's stores or Railway Station. The sum due from contractor for the value of materials supplied by the owner will be recovered from the R.A.Bill on the basis of actual consumption of materials in the work covered and for which R.A.Bill has been prepared. After completion of the work contract has to account for the full quantity of materials supplied to him.
2. The value of store materials supplied by the S.M.C. to the contract shall be charged at rates shown in the contract document and in case any other material not listed in the schedule of materials is supplied by the S.M.C., the same shall be charged at cost price including carting and other expenses incurred in procuring the same. All materials so supplied shall remain the property of the owner and shall not be removed from the site on any account. Any material remaining un-used at the time of completion of work or termination of contract shall be returned to S.M.C.'s store or any other place as directed by the Engineer-in-charge in perfectly good condition at contractor's cost. When materials are issued/ supplied free of cost for us in work and surplus and unaccounted balances thereof are not returned to the Municipal Corporation, recovery in respect of such balance will be effected at double the applicable issue rate of the materials or the market rate whichever is higher.

GC-62 CONDITIONS OF ISSUE OF MATERIALS BY THE S.M.C.:

- a) The materials specified to be issued by the S.M.C. to the contractor shall be issued by the S.M.C.'s store or at Railway Station and all expenses for its shifting to site shall be borne by the contractor. The materials will be issued during working hours and as per rules of S.M.C. from time to time.
- b) Contractor shall bear all expenses for storage and safe custody at site of materials issued to him before use in work.
- c) Material shall be issued by the S.M.C. in Standard/non-standard sizes as obtained from manufacturer.
- d) Contractor shall construct suitable godowns at site for storing the materials to protect the same from damage due to rain, dampness, fires, theft etc.
- e) The contractor should take the delivery of the materials issued by the S.M.C. after satisfying himself that they are in good conditions. Once the materials are issued, it will be the responsibility of the Contractor to keep them in good condition and in safe custody. If the materials get damaged or if they are stolen, it shall be the

responsibility of the contractor to replace them at his according to the instructions of the Engineer-in-charge.

- f) For delay in supply or for non supply of materials to be supplied by the S.M.C., on account of natural calamities, act of enemies, other difficulties beyond the control of the S.M.C., the S.M.C. carries non-responsibilities. In no case the contractor shall be entitled to claim any compensation for loss suffered by him on this account.
- g) None of the materials issued to the contractor, shall be used by the Contractor for manufacturing items which can be obtained from manufacturer. The materials issued by the owner shall be used for the work only and no other purpose.
- h) Contractor shall be required to execute indemnity bond in the prescribed form for the same custody and account of materials issued by the owner.
- i) Contractor shall furnish sufficiently in advance a Statement of his requirements of quantities of materials to be supplied by the S.M.C. and the time when the same will be required for the work, so as to enable Engineer-in-charge to make arrangements to procure and supply the materials.
- j) A daily account of materials issued by the owner shall be maintained by the Contractor showing receipt, consumption and balance in hand in the form laid down by Engineer-in-charge with all connected paper and shall be always available for inspection in the site office.
- k) Contractor shall see that only the required quantities of materials are got issued and no more. The contractor shall be responsible to return the surplus materials at S.M.C.'s store at his own cost.

GC-63 MATERIALS PROCURED WITH ASSISTANCE OF THE OWNER :

Notwithstanding anything contained to the contrary in any of the clauses of this contract, where any materials for the execution of the contract are procured with the assistance of the S.M.C. either by issue from S.M.C. stock or purchase made under orders or permits or licences issued by the Government, the contractor shall hold the same materials as trustees for owner and use such materials economically and solely for the purpose of contract and not dispose them off without the permission of S.M.C. and return, if required by Engineer-in-charge, all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on his being paid or credited such prices as Engineer-in-charge shall determine having due regard to the conditions of the materials. The price allowed to contractor shall not exceed the amount charged to him excluding the storage charges if any. The decision of Engineer-in-charge shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the contractor shall in terms of licence of permits and/or for criminal breach of trust be liable to compensate S.M.C. at double rate or any higher rates. In the event of these materials at that time having higher rate or not being available in the market then any other rate to be determined by the Engineer-in-charge and his decision shall be final and conclusive.

GC-64 MATERIALS OBTAINED FROM DISMANTLING :

If the contractor, in the course of execution of work is called upon to dismantle any part for reasons other than on account of bad or imperfect work, the materials obtained from dismantling will be the property of the S.M.C. and will be disposed of as per instruction of Engineer-in-charge in the best interest of the S.M.C.

GC-65 ARTICLE OF VALUE OR TREASURE FOUND DURING CONSTRUCTION:

All gold, silver and other minerals of any description and all previous stones, coins, treasures, relics, antiquities and other similar things which shall be found in under or upon site shall be the property of the owner and the contractor shall property preserve the same to the satisfaction of Engineer-in-charge and shall hand over the same to the owner.

GC-66 DISCREPANCIES BETWEEN INSTRUCTIONS :

If there is any discrepancy between the various stipulations of the contract documents of instructions to the contractor or his authorised representative or if any doubt arises as in the meaning of such stipulation or instructions, the contractor shall immediately refer in writing to the Engineer-in-charge whose decision shall be final and conclusive and no claim for losses caused by such discrepancy, shall in any event be admissible.

In case there is any discrepancy in measurements shown in drawing and specifications, the same shown in drawing shall be considered as final and will be binding upon the contractor.

GC-67 SCHEDULE OF QUANTITIES AND EXTRA ITEMS :**A. Schedule of Quantities :**

Variations in the quantities of work in schedule of quantities shall not vitiate the contract. The rates quoted for the individual items shall apply for the quantities of work increased or decreased by not more than twenty percent for each of the items, should the quantities of work actually involved under any item vary by more than twenty (20%) percent, the rate for such item of work shall be revised in accordance with the procedures indicated under clause "Extra Items". The payment for the items will, however, continue to be at the original rate till the revised rate decided.

B. Extra Items :

The rate of any extra item or/miscellaneous item to be executed shall decided as per rate of Government S.O.R. for the year of estimate & Rates in Schedule-B (+) plus or (-) minus percentage higher or lower stated in the tender. And if any extra or miscellaneous item which is not mentioned in the Government S.O.R. The Contractor shall be bound to execute the same item as per current market rate.

GC-68 ACTION WHEN NO SPECIFICATION IS ISSUED :

In case of any class of work for which no specification is supplied by the S.M.C. in the tender documents, such work shall be carried out in accordance with I.S.S. do not cover the same, the work should be carried out as per standard Engineering practice subject to the approval of Engineer-in-charge.

GC-69 ABNORMAL RATES :

Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and conditions of contract. This will avoid loss of profit or gain case of curtailment or change or specification for any item. In case it is notice that the rates quoted by a tenderer for any item is usually high or unusually low, it will be sufficient cause for rejection of tender unless the S.M.C. is convinced about the reasonableness of the rates on scrutiny of the analysis for such rate to be furnished by the tenderer or demand.

GC-70 ASSISTANCE TO ENGINEER-IN-CHARGE :

Contractor shall make available to Engineer-in-charge free of cost all necessary instruments and assistance in checking of any work made by the contractor for taking measurement of work.

GC-71 TEST OF QUALITY OF WORK :

1. All workmanship shall be of the best kind described in the contract document and in accordance with the instructions of Engineer-in-charge and shall be subjected from time to time to such test at contractor's cost as the Engineer-in-charge may directed at the place of manufacture of fabrication or on site or at any such place. Contractor shall provide assistance, instruments labour and materials as are normally required for examining measuring and testing any work workmanship as may be selected and required by Engineer-in-charge.
2. All tests will be necessary in connection with the execution of work as decided by Engineer-in-charge shall be carried out at an approved laboratory at contractor's cost.
3. The contractor shall furnish to Engineer - in - charge for approval when requested or if required by the specification adequate samples of all materials and finished goods to be used in work and sufficiently in advance to permit test and examination thereof. All materials furnished and finished goods applied in work shall be exactly as per the approved samples.
4. All the testing charges shall be borne by the Contractor.

GC-72 ACTION AND COMPENSATION IN CASE OF BAD WORKMANSHIP :

If it shall appear to the Engineer-in-charge that any work has been executed with materials of inferior description, or quality or are unsound or with unsound imperfect or unskilled workmanship or otherwise not in accordance with the contractor shall, no demand in writing from Engineer-in-charge or his authorised representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for forthwith rectify or remove and reconstruct the work, specified and in the event of failure to do so within a period to be specified by Engineer-in-charge in his aforesaid demand, contractor shall be liable to pay compensation at the rate of one (1) percent of the tendered cost of work for every Ten (10) days limited to a maximum of Ten (10%) Percent of the value of work while his failure to do so continue and in the case of any such failure the Engineer-in-charge may on expiry of the notice period rectify and remove and re-execute the work or remove and replace with other at the risk and cost of the Contractor. The decision of the Engineer-in-charge as to any question arising under this clause shall be final and conclusive.

GC-73 SUSPENSION OF WORK :

Contractor shall, if ordered in writing by Engineer-in-charge or his representative temporarily suspended the work or any part thereof for such time (not exceeding two months) as ordered and shall not after receiving such written order proceed with the work until he shall have received a written order to proceed therewith the contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of work as aforesaid. An extension of time for completion of work will be granted to the contractor corresponding to the delay caused by such suspension of work if the applied for the same provided the

suspension was not consequent upon any default or failure on the part of the contractor.

GC-74 OWNER MAY DO PART OF THE WORK :

When the contractor fails to comply with any instructions given in accordance with the provisions of this contract, the S.M.C. has the right to carry out such parts of work as the S.M.C. may designate whether by purchasing materials and engaging labour or by the agency of another contractor. In such case the S.M.C. shall deduct from the amount which otherwise might become due to contractor the cost of such work and materials with Ten (10%) percent added to cover all departmental charges and should the total amount thereof exceed the amount due to contractor, contractor shall pay the difference to S.M.C.

GC-75 POSSESSION PRIOR TO COMPLETION :

The Engineer-in-charge shall have the right to take possession of or to use any completed or partly completed work or part of work, such possession or use shall not be deemed to be an acceptance of any work completed in accordance with the contract. If such prior possession or use by Engineer-in-charge delays the progress of work, equitable adjustment in the time of completion will be made and the contract shall be deemed to be modified accordingly.

GC-76 COMPLETION CERTIFICATE :

As soon as the work has been completed in accordance with contract (except in minor respect that do not effect their use for the purpose for which they are intended and except for maintenance thereof) as per general conditions of contract and has passed the tests on completion, the Engineer-in-charge shall issue a certificate (hereinafter called completion certificate) in which he shall certify the date on which work has been completed and has passed the said tests and S.M.C. shall be deemed to have taken over work on the date so certified. If work has been divided in various groups in contract, S.M.C. shall be entitled to take over any group or groups before the other or others and there-upon the Engineer-in-charge will issue a completion certificate which will, however, be for such group or groups so taken over only. In order that contractor could obtain a completion certificate, he shall make good, with all speed any defect arising from the defective materials supplied by contractor or workmanship or any act or omission of contract that may have been discovered or developed after the work or group of works has been taken over. The period allowed for carrying out such work will be normally, one month. If any defect be not remedied within a reasonable time, S.M.C. may proceed to do work at contractor's risk and expenses and deduct from the final bill such amount as may be decided by S.M.C. If by reason of any default on the part of the contractor, a completion certificate has not been issued in respect of every portion of work within one month after the date fixed by contractor for completion of work, S.M.C. shall be at liberty to use work or any portion thereof in respect of which a completion-certificate has been issued, provided that work or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completion of this work for the issue of completion certificate.

GC-77 SCHEDULE OF RATES :

1. The price/rates quoted by the contractor shall remain firm till the issue of final certificate and shall be subject to price ADJUSTMENT CLAUSE GC-35. Schedule of rates shall be deemed to include and cover all costs expenses and liabilities of

every description and all risks of every kind to be taken in executing, completing and handling overwork to owner by contractor. Contractor shall be deemed to have known the nature, scope, magnitude and the extent of work and materials required through contract documents may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of work and materials as may be reasonable and necessary to completion work. The opinion of Engineer-in-charge as to the item of work shall be final and binding on Contractor although the same may be not shown on or described specifically in contract documents.

2. The Schedule of rates shall be deemed to include and cover the cost of all constructional plant, temporary work, pumps, materials, labour and all other materials in connection with each item in schedule of rates and the execution of work or any portion thereof furnished complete in every respect and maintained as shown or described in the contract document or as may be ordered in writing during the continuance of the contract.
3. The Schedule of rates shall be deemed to include and cover the cost of all royalties and free for the articles and processes, protected by letters patent or otherwise incorporated in or used in connection with work, also all royalties, and other payments in connection with materials of whatsoever kind for work and shall include an indemnity to-owner which contractor hereby gives against all action, proceeding, claims, damages, costs and expenses arising from the incorporation in use of work of any such articles, processes or materials. Octroi of other Municipal or Local Board charges if levied on materials equipment of machineries to be brought to site for use on work shall be borne by the contractor.
4. No exemption or reduction of custom duties excise duties, sales-tax or any other taxes or charges of the Central or State Government any local body whatsoever will be granted to obtained. All of such expenses shall be deemed to have been included in and covered by schedule of rates. Contractor will also obtained and pay for all permits or other privileges necessary to complete work.
5. The schedule of rates shall be deemed to include and cover risk on account of delay or interference with contractor's conduct of work which may occur from any cause including orders of S.M.C. in the exercise of his power and no account of extension of time granted due to various reasons.
6. For work under unit rate basis no alteration will be allowed in the schedule of rates by reason of work or any part of them being field, altered extended, diminished or ommitted.
7. **1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.**

GC-78 PROCEDURE FOR MEASUREMENT OF WORK IN PROGRESS :

1. All measurements shall be in metric system. All the work in progress will be jointly measured by the representative of Engineer-in-charge and contractor's authorised agent. Such measurements will be got recorded in the measurement book by the Engineer or his authorised representative and signed by contractor or his authorised agent in token of acceptance. If the contractor or his authorised agent fails to be present when ever required by the Engineer-in-charge for taking measurements for any reasons whatsoever, the measurement will be taken by the Engineer-in-charge or his authorised representative notwithstanding the absence of contract and these measurement will be deemed to be correct and binding on contractor.

2. Contractor will submit a bill in approved proforma in duplicate to the Engineer-in-charge of the work giving abstract and detailed measurements of various items executed during a month as mutually agreed. The Engineer-in-charge shall verify the bill and the claim, far as admissible, adjusted if possible, within 10 days of presentation of the bills.
3. In case of Tenders for completed items of work, contractor may be allowed 'Secured Advance' on the Security of materials brought to site for execution of the constructed items of work to the extent of 75% of the value of materials of unperishable nature and an agreement bedrawn up with contractor under which the owner secured a lien on these materials and is safe guarded against losses due to any reasons whatsoever. Recoveries of advance paid would not be postponed till the whole work is completed but shall be adjusted from his work done or the materials used, the necessary deductions being made when the items of work in which they are used and are billed for. When the mode of measurement is not covered by contract for any item of work it shall be as per latest I.S.I.

GC-79 RUNNING ACCOUNT PAYMENT TO BE RECOVERED AS ADVANCES :

All running account payments shall be regarded as payments by way of advance against the final payment only and not as payment for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or to be considered as an admission of the due performance of contract or any part thereof.

GC-80 NOTICE FOR CLAIM FOR ADDITIONAL PAYMENT :

If the contractor considers that he is entitled to extra payment or compensation or any claim whatsoever in respect of work, he shall forthwith give notice in writing to the Engineer-in-charge about his extra payment and/or compensation. Such notice shall be given to the Engineer-in-charge within Ten (10) days from the happening of any event upon which contractor basis such claims and such notice shall contain full particular of the nature of such claim with full details and amount claimed. Failure on the part of the contractor to put forward any claim with the necessary particulars as above within the time above specified shall be an absolute waiver thereof. No commission by S.M.C. to reject any such claim and no delay in dealing therewith shall be waiver by S.M.C. of any rights in respect thereof.

GC-81 PAYMENT OF CONTRACTOR'S BILL :

The price to be paid by the S.M.C. to contractor for the work to be done and for the performance of all the obligations under taken by the contractor under contract shall be based on the contract price and payment to be made accordingly for the work actually executed and approved by the Engineer-in-charge.

No payment shall be made for work costing less than Rs.5,000/- till the work is completed and a certificate of completion given. But in case of work estimated to cost more than Rs.5,000/- contractor on submitting the bill thereof will be entitled to receive a monthly payment, proportionate to the part thereof, approved and passed by Engineer-in-charge whose certificate of such approval and passing of the sum so payable shall be final and conclusive against contractor. This payment will be made after making necessary deductions as stipulated elsewhere in the contract documents for materials, security deposit, etc. The payment shall be released to the contractor within Thirty (30) days of submission of the bill in case of running bill and with in two

(02) months in case of final bill, contractor shall present the bill duly pre-receipted on proper revenue stamp.

Payment due to Contractor shall be made by the by crossed Accounts payee cheque in Indian currency forwarding the same to the registered office of the contractor. Owner shall not be responsible if the cheque is mislaid or misappropriated by unauthorised person.

GC-82 FINAL BILL :

The final bill shall be submitted by Contractor within two (02) month of the date of physical completion of work, Otherwise the Engineer-in-charge certificate of the measurement and of total amount payable for work shall be finalised binding on all parties.

GC-83 RECEIPT FOR PAYMENT :

Receipt for payment made on account of work when executed by a firm must be signed by a person holding power of attorney in this respect on behalf of contractor except when described in the tender as a limited company in which case the receipt must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the Company.

GC-84 COMPLETION CERTIFICATE :

1. When the contractor fulfil his obligation as per terms of contract he shall be eligible to apply for completion certificate. Contractor may apply for separate completion certificate in respect of each such portion of work by submitting the completion documents alongwith such application for completion certificate.

The Engineer-in-charge shall normally issue to contractor the completion certificate within 2 (Two) month after receiving an application thereof from contractor after verifying from the complete documents and satisfying himself that work has been completed in accordance with and as set out in the construction and erection drawings and the contract document. Contractor after obtaining the completion certificate is eligible to present the final bill for work executed by him under the terms of contract.

2. Within 2 (Two) month of completion of work in all respect contractor shall be furnished with a certificate by the Engineer-in-charge of such completion but no certificate shall be given nor shall work be deemed to have been executed, until all (1) scaffolding, surplus materials and rubbish is clearing off site completely (2) until work shall have been measured by the Engineer-in-charge whose measurement shall be binding and conclusive and (3) until all the temporary works, labour and staff colonies etc. constructed are removed and the work site cleaned to the satisfaction of the Engineer-in-charge. If contractors shall fail to comply with the requirements as aforesaid or before date fixed for the completion of work, the Engineer-in-charge may at the expenses of contractor remove such scaffolding, surplus materials and rubbish and dispose of the same he thinks fit.
3. The following documents will form the completion documents :
 - (a) Technical documents according to which work was carried out.
 - (b) Construction drawings showing therein the modifications and corrections made during the course of execution signed by Engineer-in-charge.
 - (c) Completion certificate for "Embedded" or "Covered" up work.
 - (d) Certificate of final levels as set out for various works.

- (e) Material appropriation statement for the materials issued by owner for work and list of surplus materials returned to S.M.C.'s store duly supported by necessary documents.
- 4. Upon expiry of the period of defects liability and subject to Engineer-in-charge being satisfied that work has been duly maintained by contractor during the defects liability period as fixed originally, or as external subsequently and the contractor has in all respects made up by subsidence and performed all his obligations under contract, the Engineer-in-charge shall (without prejudice to the rights of owner in any way) give final certificate to that effect. The Contractor shall not be considered to have fulfilled the whole of his obligation until final certificate shall have been given by the Engineer-in-charge notwithstanding previous entry upon and taking possession, working or using of the same or any part thereof by owner.
- 5. Final Certificate only Evidence of Completion :
Except the final certificate no other certificate or payments against a certificate or an general account shall be taken to be an admission by owner of the due performance of contract or any part thereof or of occupancy validity of any claim by the contractor.

GC-85 TAXES, DUTIES, OCTROI, ETC. :

- 1. Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes, including sales taxes, duties, octroi etc. now or herein after imposed, increased or modified from time to time in respect of work and materials and all contributions and taxes for unemployment compensation, insurance and old age pension or annuities now or herein after imposed by Central or State Government authorities with respect to or cover and by the wages, salaries or other compensation paid to the persons employed by Contractor. The contractor shall produce sales tax clearance certificate from the competent authority before payment of final bill. If the contractor is not liable to sales tax assessment, a certificate to the effect from the competent authority shall be produced without which final payment to the contractor shall not be made. No. "P" "C" or "E-1" form shall be supplied by the Municipal Corporation, and the contractor shall be required to pay full sale tax as applicable.
- 2. Contractor shall be responsible for compliance with all obligations and restrictions imposed by the labour law or any other law affecting employer employee relationship.
- 3. Contractor further agrees to comply and to secure the compliance of all sub-contractors with applicable Central, State, Municipal and Local law and regulations and requirements. Contractor also agrees to defend, indemnify and hold harmless the owner from any liability or penalty which may be imposed by Central, State or Local authorities by reasons of any violation by contractor or sub-contractor or such laws, regulation of requirements and also from all claims, suits or proceedings that may be brought against owner arising under, growing out of or by reasons of work provided for by this contract, by third parties or by Central or State Government Authority or any administration sub-division thereof. Though the Government of Gujarat has introduced Sales tax on work contract whether it may be named as sales or work contract tax, no exact tax kstructure has yet been finalised by Government. In such circumstances, the Corporation shall pay such tax on the work executed by the Contractor under this contract whether it may be

named as sales tax or work contract tax, if the same is levied by the Government at a later date and required to be paid by the Contractor.

1% Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.

GC-86 INSURANCE :

Contractor shall at his own expenses carry and maintain with reputable Insurance Companies to the satisfaction of owner as follows :

1. Employees State Insurance Act :

Contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees' State Insurance Act 1948, and Contractor further agree to defend, indemnify and hold owner harmless from any liability or penalty which may be imposed by the Central or State Government of Local authority by reasons of any asserted violation by contractor or Sub-Contractor of the Employees' State Insurance Act, 1948 and also from all claims, suits or proceedings that may be brought against owner arising tender, growing out of or by reasons of the work provided for by this contract whether brought by employees of Contractor, by third parties or by Central or State Government authority or any administrative Sub-division thereof.

Contractor agrees to fill in with the Employees State Insurance Corporation, the declaration from and all forms which may be required in respect Contractor's or Sub- contractor's employees these aggregate remuneration is Rs. 400/- p.m. or less and who are employed in work provided for or those covered by E.S.I from time to time under the agreement. The Contractor shall deduct and secure the agreement of the Sub-contractor to deduct the employees' contribution as per the first Schedule of the Employees' State Insurance Act from wages. Contractor shall remit and secure the agreement of Sub-contractor to remit to the State Bank of India Employees' State Insurance Corporation Accounts, the employees contribution as required by the Act Contractor agrees to maintain all cares and record as required under the Act in respect of employees and payments and contractor shall secure the agreements of the sub-contractors to maintain such records, any expenses incurred for the contributions or maintaining records shall be to contractor's or sub-contractor' account. Owner shall retain such sum as may be necessary from the contract value until contractor shall furnish satisfactory proof that all contribution as required by the Employees' State Insurance Act 1948 have been paid.

2. Workman's Compensation And Employees Liability Insurance :

Insurance shall be effected for all contractors employees engaged in the performance of this contract. If any part of work is sublet, contractor shall require the sub-contractor to provide workmans' compensation and employer's liability insurance which may be required by owner.

3. Other Insurance required under law or regulation by owner :

Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance which may be required by owner.

GC-87 DAMAGE TO PROPERTY :

Contractor shall be responsible for making good to the satisfaction of owner any loss of and any damage to all structures and properties belonging to owner or being

executed or Procured by owner or of other Agencies within the premises of all work of owner, if such loss or damage is due to fault and / or the negligence or will full act or omission of contractor, his employees, agent representatives or Sub-contractors. Contractors shall indemnify and keep owner harmless of all claims for damage to properties other than S.M.C's property arising under or by reasons of this agreement if such claims result from the fault and / or negligence or wilful act of omission of contractor, his employees, agents, representatives or sub-contractors.

GC-88 LABOUR LAWS AND REGULATIONS :

1. The contractor shall be responsible for the strict compliance of and shall ensure strict compliance by his sub contractor employees and agents of all labours and others laws, rules or regulations having the force of law affecting the relationship of employer and employee between the contractor / sub-contractor and their respective employees.
2. No labour below the age of eighteen (18) year be employed on work.
3. Contractor shall pay to the labours engaged on work according the law.
4. The Contractor and sub-contractors of the contractor shall obtain proper authority disignated in this behalf under any application law, rules or regulations (including but not restricted to the factories Act and Contract Labour Abolition and Regulation Act 1970,) in so far as applicable) any and all such licences, consents, Registration and / or other authorisation as shall from time to time be or become necessary for relatint to the execution of work or any part of portion thereof or the storage or supply of any materials or otherwise in connection with the performance of the contract and shall at all times observance by the sub-contractors, employees and agents of all terms and conditions of the said licences, consents, regulation and other authorisation and laws, rules and regulations applicable thereto.

GC-89 CONTRACTOR TO INDEMNIFY OWNER :

1. The Contractor shall indemnify and keep indemnified the owner and every member, officer and employee of owner from and against all action, claims, demands and liabilities whatsoever and in respect of the breach of any of the above clauses and/or against any claim, action or demand by any workman / employee of the contractor or any sub-contractor and or from any liability and way to any workman / employee of the contractor or any sub-contractor under any law, rule or regulations having the force of law, including but not limited to claims against the owner under the workman compensation Act 1923. The employees' Provident Funds Act 1952 and/or the Contract Labour (Abolition and Regulations) Act, 1970.
2. Payment of claims and damages :
If owner has to pay any money in respect of such claims or demands as aforesaid, the amount so paid and the cost incurred by the owner shall be charged to and paid by contractor without any dispute notwithstanding the same may have been paid without the consent or authority of the Contractor.
3. In every case in which by virtue of any provision applicable in the workman's Compensation Act 1923 or any other Act, be obliged to pay compensation to workman employed by Contractor the amount of compensation so paid, and without prejudice to the rights of S.M.C. under sec.(12) Sub-section (2) of the said Act, S.M.C. shall be at liberty to recover such amount from any surplus due to the contractor or the security deposit. S.M.C. will not be bound to contest any claim

made under section (12) Sub-section (2) of the said Act except or written request of Contractor and upon the contesting of such claim.

4. The Contractor shall protect adjoining sites against structural decorative and other damages that could be caused to adjoining premises by the execution of these works and made good at his cost, any such damage, so caused.

GC-90 IMPLEMENTATION OF APPRENTICE ACT 1964 :

Contractor shall comply with the provisions of the Apprentice Act 1964 and the orders issued thereunder from time to time. If the fails to do so, it will be a breach of contract. Contractor shall also be liable for any particular liability arising on account of any violation of the provisions of the Act by him.

GC-91 HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS :

Contractor shall comply with all the rules and regulations of the local sanitary authorities or as framed by owner from time to time for the protection of health and sanitary arrangements of all labour directly or indirectly employed on the work of this contract.

GC-92 SAFETY CODE :

GENERAL :

Contractor shall adhere to safe construction practice and guard against hazardous and unsafe working conditions and shall comply with owner's safety rules and set forth herein.

1. First Aid and Industrial Injuries :

- 1.1 Contractor shall maintain first aid facilities for its employees and chose of his sub-contractor.
- 1.2 Contractor shall make outside arrangements for ambulance service and for the treatment of industrial injuries. Name of those providing these services shall be furnished to Engineer-in-charge prior to start of construction, and their telephone numbers shall be prominently posted in contractor's field office.
- 1.3 All injuries shall be reported promptly to Engineer-in-charge, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to owner.

2. General Rules :

- 2.1 Carrying, striking, matches, lighters inside the project area & smoking within the job site is strictly prohibited Violators of smoking rules shall be discharged immediately. Within the operation area, not hot work shall be permitted without valid gas safety, fire permits. The Contractor shall also be held liable and responsible for all lapses of his sub-contractors / employees in this regards.

3. Scaffolding :

- 3.1 Suitable scaffolding shall be provided for workmen for all works that can not 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 latter is used for carrying materials as well, suitable foothold sand handholds shall be provided on the ladder and the same shall be given inclination not steeper than 1 to 4 (1 horizontal and 4 vertical).

- 3.2 Scaffolding or staging more than 3.6 M (12') above the ground or floor, swing or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise fixed at least 1.0 M (3') high above the floor or platform of scaffolding or staging and extending along the entire length of the outside 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.
4. Maintenance of Safety Devices :
- 4.1 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in some conditions and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near place or work.
5. Display of Safety Instructions :
- 5.1 These safety provisions should be brought to the notice of all concerned by display on a notice board at a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.
6. Enforcement of Safety Regulations :
- 6.1 To ensure effective enforcement of the rules and regulations relating safety precautions, the arrangements made by the contractor shall be open to inspection by the welfare Officer, Engineer-in-charge of safety Engineer of the owner or their representatives.
7. No Exemption :
- 7.1 Notwithstanding the above clause 1.0 to 13.0 there is nothing to exempt the contractor from the operations of any other Act or rules in force in the Republic of India.
- 7.2 In addition to the above, the Contractor shall abide by the safety code provision as per C.P.W.D. Safety Code framed from time to time.

GC-93 ACCIDENTS :

It shall be the contractor's responsibility to protect against accidents on the work. He shall indemnify the Municipal Corporation against any claim for damage or for injury to persons or property resulting from, and in the course of work and also under the provision of the Workman's Compensation Act. On the occurrence of an accident arising out of the works which results in death or which is so serious as to be likely to result in death, the contractor shall within twenty four hours of such accident, report in writing to the Engineer-in-charge, the facts stating clearly and in sufficient details the circumstances of such accident and the subsequent action. All other accidents on the works involving injuries to persons or damage to property other than that of the contractors shall be promptly reported to the Engineer-in-charge stating clearly and in sufficient details and facts and circumstances of the accidents and the action taken. In all cases the contractor shall indemnify the Municipal Corporation against all loss of damage resulting directly or indirectly from the Contractor's failure to report in the manner aforesaid. This includes penalties or fine consequence of failure to give notice under the workman's compensation Act or failure to conform to the provisions of the said. Act in regard to such accidents.

In the event of an accident in respect of which compensation may become payable under the workmen's compensation Act VIII of 1923 including all modification thereof whether such compensation may become payable by the contractor or by the

Municipal Corporation as principal employer, the Engineer-in-charge may retain out of money due and payable to the contractor such sum or sums of money as may, in the opinion of the Engineer-in-charge be sufficient to meet such liability. On receipt of award from the labour commission in regard to quantum of compensation, the difference in amount will be adjusted.

GC-94 It is clarified that if the contractor makes his own arrangements for water required for construction and labour camp etc. by drilling bore. No water charges will be recovered from the contractor. On the otherhand, even if the contractor is not taking connection and makes other arrangement to use Municipal water by tanker or tapping water from near private connection even so water charges shall be recovered as per relevant condition of the tender.

GC-95 TESTING AND INSPECTION CHARGE :-

The Contractor shall have to borne all the charges for testing and Inspection purpose. The Contractor shall have to bear the to and fro travelling allowances, dearness allowance of S.M.C. officials as per prevailing rules and regulation of S.M.C. the amount will be deducted from R.A.Bills.

GC-96 SPECIAL CLAUSES REGARDING REFUND/RECOVERY OF EXCESS/ ADDITION SECURITY DEPOSIT :-

In case the total amount of work done is less by 5% of the contract value, prorata S.D. to that extent may be refunded to the contractor while releasing the payment of final bill. In short, the S.D.to be retained by the Corporation after payment of final bill shall be equal to 2% of the amount of final bill as per the prevailing norms or as per the norms decided from time to time.

The Additional S.D. shall be recovered from the running bill. When the total of any of work done by the Contractor upto running bills under consideration is more than 5% of the contract value. However, such S.D. shall be recovered in the round figure of Rs.1000/- i.e. the amount of work done when it exceeds 5% of the contract value it shall be rounded of to the nearest multiple of Rs. 25000/- such additional S.D. (4% of the additional amount) shall be recovered for the works amounting to Rs. 5/- Lacs or more.

GC-97 If the contractor fails to complete the work and the Commissioner on behalf of the Corporation takes actions in accordance to Clause 3(a) or (b) or (c) of the contract then in such cases the remaining work shall be carried out at the risk and cost of the original contractor by advertising the tender for the raming work and the whole administrative process right from inviting the tenders to finalising the tender etc. shall have to be repeated. For this, a fixed amount of Rs. 1000/- shall be recovered from the original contractor towards the cost of re-advertisement and other administrative charges incurred by the department in finalising the contract for the remaining work. If however, separate advertisement is issued for the instant work, actual cost of advertisement shall be recovered. Such recovery shall be in addition to the recovery to be made under such other relevant clauses.

GC-98 No Contractor shall employ any person who is under the age of 15 years. If any contractor found employing person or persons under the age of 15 years, during course of the construction at any stage, legal actions shall be taken against him as stipulated in Child Labour (Prohibition & Regulation) Act 1986 and also, a penalty of

Rs.20,000/-(Rupees Twenty thousand) shall be imposed which shall be deposited with District Collector in Child Labour Rehabilitation cum Welfare Fund.

GC-99 The Engineer-in-charge shall have power to take any alteration in, or addition to the original specifications, drawings, designs and instruction 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 any 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 same rates as are specified in the tender for the main work. And if the additional and altered work includes any class of work for which no rates is specified in this contract than such class of work shall be carried out at the rates entered in the schedule of rates of Municipal Corporation or at the rates mutually agreed upon between the Engineer-in-charge and the contractor whichever are lower if the additional or altered work for which no rate is entered in the schedule of Rates of Municipal Corporation 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 which it is his intention to charge for such class of work and if the Engineer-in-charge does not agree to this rate he shall by notice in writing be at liberty to cancel his order to carry out 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 the work or incur any expenditure in regards 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 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 rates as shall be fixed by the Engineer-in-charge. In the event of a dispute, the decision of the Commissioner will be final.

Where, however, the work shall have to be executed according to the designs; drawings and specifications recommended by the contractor and accepted by the competent authority the alteration above referred to shall within the scope of such designs drawings and specification appended to the tender.

GC-100 The contractor shall not be entitled to claim any compensation from Municipal Corporation for the loss suffered by him on account of delay by Municipal Corporation in the supply of materials entered in Schedule 'A' where such delay is caused by

- (1) Difficulties relating to the supply of Railway wagons & availability of Government controlled materials-
- (2) Force Majeure.
- (3) Act of God.
- (4) Act of the Nation's enemies or any other reasonable cause beyond the control of Municipal Corporation.

In the case of such delay in the supply of material the Municipal Corporation shall grant such extension of time for the completion of the work as shall appear to the Commissioner to be reasonable in accordance with the circumstances of the case.

The decision of the Commissioner as to the extension of time shall be accepted as final by the contractor.

Executive Engineer
New East(Sarthana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

Name :-

Address :-

7.0 SPECIAL CONDITIONS OF CONTRACT

1.0 GENERAL CONDITIONS :

- 1.1
 - i] The storm drainage network site is located within the premises of S.M.C.
 - ii] Service roads are laid within and upto the site of the work. These will be available to the contractor subject to any limitations imposed by SMC.
 - iii] The contractor shall have to obtain tokens for himself and to obtain gate passes for removing any of his materials outside the premises. The contractors persons entry and exit will be through main gate only.
 - iv] Non availability of access roads or railway siding or permits for entry of vehicles and equipment at any specific area shall in no case be the cause to condone any delay in the execution of the works or be the cause for any claims or extra compensations.

1.2 Scope of Work

The contractors shall provide all necessary materials, equipment, labour etc. for the execution and maintenance of the work till completion, unless otherwise mentioned in the tender documents. All materials that go with the work shall be approved by the Engineer- in-charge prior to procurement and use.

1.3 Water Supply

For all the purposes connected with the work, the contractors shall be allowed the use of water from the Municipal mains wherever available at prevailing rates. The contractors, however, will have to make their own arrangements to get at their cost necessary water connections from the Municipal mains. If the water is, in the opinion of the Engineer, used improperly or wasted, the Engineer may cause the supply of water to be discontinued or the water will be supplied to the Contractors at double the prevailing rate of water for the quantity of water used. The contractors will be charged for all the costs connected with making any connections with the mains that may be required for the purpose of the work and later for cutting off such connections, besides the usual Municipal Charge for the use of meters, if any, fixed by the Engineer. In order to prevent the misuse or wastage of water by the Contractors, the Engineer shall be at the liberty to engage a Mukadam at the cost of the Contractors on wages not exceeding Rs.150/- [Rupees One Hundred Fifty Only] per day [exclusive of other charges leviable by the Corporation under rules such as dearness allowance and supervision etc.] for supervising and controlling the use of water by the contractors men. In no case water will be supplied free of cost. If Municipal mains are not available nearby the contractor shall have to make his own arrangements at his cost for water required for construction purpose.

1.4 Electric Supply for construction purpose.

The contractor shall make his own arrangements at his own cost for electric supply required for operating various plants and machineries required for the work and for general lighting purpose for site, office, labour colony etc. The energy bills shall also be paid by the contractor.

2.0 SUBMISSION OF TENDER :

- 2.1 Tender must be submitted in original and without making any additions, alterations and as per details given in other clauses given here under. The requisite details shall be filled in by the contractor in the tender documents. The item rates shall be filled in the given schedules in this tender and bills of quantity should be clearly brought out in a separate letter.

- 2.2 Addenda / corrigenda to this tender documents, if issued must be signed and submitted along with the technical bid (i.e. Cover-2).
The tenderer should write clearly the revised quantities in Bills of Quantity of tender documents and should price the work based on revised quantities when amendments for quantities are issued in addenda.
- 3.0 DOCUMENTS :
- 3.1 The Tenders as submitted will consists of the following :
- i] Complete set of tender documents as sold duly filled in and signed by the tenderer as prescribed in different clauses of the tender documents.
 - ii] Declaration showing all works of similar types and magnitudes carried out and on hand with the contractor and the value of works that remains to be executed must accompany the tender.
 - iii] Solvency Certificate of Bank or a Revenue Officer of an amount upto 20% of the tendered cost plus the amount of works on hand still to be executed will have to be produced by the Contractor. In respect of the tenders from the co-operative society, a solvency certificate of an amount equal to 20% of the amount of work put to tender will have to be produced alongwith the tender or a certificate regarding the borrowing capacity of the society issued by the Legal Assistant, Director of Cottage Industries will have to be produced alongwith the tender.
 - iv] Voucher for earnest money deposit must accompany the tender. Tenderer may pay earnest money in the form of a CROSSED DEMAND DRAFT of a local bank drawn in favour of the Municipal Commissioner. Earnest money by cheque shall not be accepted.
 - v] Tenderer should submit the True Copy of the Certificates of Registration alongwith the tender without which the tender will not be considered.
- 3.2 All pages to be initialled
All signatures in tender documents shall be dated as well as all the pages of the sections of tender documents shall be initialled at the lower right hand corner and signed wherever required in the tender papers by the tenderer or by a person holding power of attorney, authorising him to sign on behalf of the tenderer before submission of tender.
- 3.3 Discrepancies & Adjustments of Errors
Any error in quantity or amount in schedule 'B' showing items of works to be carried out shall be adjusted in accordance with the following rules ---
- a] In the event of a discrepancy between description in words & figures quoted by a tenderer in the 'rates' column, the descriptions in words shall be prevailed.
 - b] In the event of an error occurring in the 'amount' column of the schedule 'B' showing items of works, as a result of wrong multiplication of the unit rate and quantity, the unit rate shall be regarded as firm and multiplications shall be amended on the basis of the rates.
 - c] All the errors in totalling in 'amount' column and in carrying forward totals shall be corrected.
 - d] Any rounding off of amounts against 'items' or in 'totals' shall be ignored.
- The tendered sum so altered shall, for the purpose of the tenders be substituted for the sum originally tendered and considered for acceptance.
- 3.4 Signature of Tenderer

The tender shall contain the name, residence and place of business of person or persons submitting the tender and shall be signed by the tenderer with his usual signature. In case of partnership firm name of all the partners shall be given and tender shall be signed by duly authorised representative followed by the name and designation of the person signing. Tender by a corporation limited company shall be signed by an authorised representative and a power of attorney in behalf shall accompany the tender. A copy of the constitution of the firm with the name of all the partners to be furnished.

3.5 Details of Experience

The tenderer should enclose documents to show that he has previous experience in having successfully completed in the recent past works of this nature, together with the names of owners, location on sites and values of contracts.

4.0 TRANSFER OF TENDER DOCUMENTS :

Transfer of tender documents purchased by an intending tenderer to another is not permissible.

5.0 VALIDITY :

The tender for work shall remain open for a period of 120 days from the date of opening of the price-bid cover for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during this period. If any tenderer withdraws or makes any modifications or additions in the terms & conditions of his tender, not acceptable to the corporation then, the corporation shall without prejudice to any right or remedy, be at liberty to forfeit in full the earnest money deposit.

6.0 ADDENDA/CORRIGENDAM:

Addenda/Corrigenda to the tender documents shall be issued prior to the date of submitting of tenders to clarify documents or to effect modifications in the design or contract terms. All addenda/corrigenda issued shall become part of tender.

7.0 RIGHT TO OWNER TO ACCEPT OR REJECT TENDER :

The right to accept the tender will rest with the S.M.C. The S.M.C., however, does not bind itself to accept the lowest tender, and reserves to itself the authority to reject any or all the tenders received without assigning any reason whatsoever. Tenders in which any of the particulars and prescribed information are missing or are incomplete in any respect and/or the prescribed condition are not fulfilled are liable to be rejected.

8.0 RETENTION MONEY :

The sum of amount mentioned under Clause-8 of Memorandum of works will be retained by the S.M.C. as retention money. This amount will be deducted progressively from each running bill of the contract by the S.M.C. the above referred retention money will be released on virtual completion of work in the final bill.

9.0 COLLECTION OF DATA TENDERERS' RESPONSIBILITY :

The tenderer shall visit the site and acquaint himself fully of the site and no claims whatsoever will be entertained on the plea of ignorance or difficulties involved in execution of work or carriage of materials.

10.0 SIGNING OF THE CONTRACT :

The successful tenderer shall be required to execute an agreement in the proforma attached with the tender documents within ten days of the receipt by him of the notification of acceptance of tender. In the event of failure on the part of the successful tenderer to sign the agreement within the above stipulated period, the acceptance of the tender shall be considered as cancelled and Earnest Money Deposit amount will be forfeited.

11.0 CO-ORDINATION OF WORK :

The Engineer-in-charge shall co-ordinate the works of various agencies engaged at site to ensure minimum disruption of work carried out by different agencies. It must be the responsibility of the contractor to plan and execute the work strictly in accordance with site instructions to avoid hindrance to the work being executed by other agencies.

12.0 INTERPRETATION OF CONTRACT DOCUMENTS :

12.1 Except if and to the extent otherwise provided by the contract, the provisions of the General Conditions of Contract and special conditions shall prevail over those of any other documents forming part of the contract. Several documents forming the contract are to be taken as mutually explanatory, should there be any discrepancies, inconsistencies, errors or omissions in the contracts or any of them, the matter may be referred to the Engineer-in-charge who shall give his decisions and issue to the contractor instructions directing in what manner the work is to be carried out. The decision of the Engineer-in-charge shall be final and conclusive and the contractor shall carry out the work in accordance with this decision.

12.2 Works shown upon the drawings but not mentioned in the specifications or described in the specifications without being shown on the drawings shall nevertheless be held to be included in the same manner as if they had been specifically shown upon the drawings and described in the specifications.

12.3 i] The various documents forming the contract are the essential parts of the contracts and a requirement occurring in one is as binding as though occurring in all, they are intended to be mutually explanatory and complementary and to describe and provide for a complete work.

ii] In the event of any discrepancies, the various documents forming the contract or in any one document, the following order of precedence should apply ---

a] Dimensions & quantities ---

i] Drawings.

ii] Schedule 'B' of the tender form.

On drawings, figures, dimensions, unless obviously incorrect will be followed in preference to shown dimensions

b] Description ---

i] Schedule 'B' of the tender form.

ii] Drawings

iii] Specifications

In case of defective description or ambiguity, the Engineer-in-charge should issue further instructions / directions in what manner the work is to be carried out, it being understood that the best modern practice is to be followed. The contractor should forthwith comply with such instructions

iii] The contractor should take no advantage of any apparent error or omissions in drawings or specifications and the Engineer-in-charge shall make such

corrections and interpretations as necessary to fulfill the intent of the plans and specifications.

13. FORCE MAJEURE :

Any delays in or failure of the performance of either part hereto shall not constitute default hereunder or give rise to claims for damages, if any, to the extent such delays or failure of performance is caused by occurrences such as Acts of God or the public enemy; expropriation or confiscation of facilities by Government authorities, compliance with any order or request of any Governmental authorities, acts of war, rebelling or sabotage or fires, floods, explosions, riots or illegal strikes. The contractor shall keep records of the circumstances referred to above and bring these to the notice of the Engineer-in-charge in writing immediately on such occurrences.

14.0 FORFEITURE OF RETENTION MONEY :

Whenever any claim against the contractor for the payment of a sum of money arises out of or under the contract, the S.M.C. shall be entitled to recover such sum by appropriating in part or whole of the retention money of the contractor. In case, the retention money is insufficient or if no retention money has been taken from the contractor, then the balance or the total sum recoverable, as the case may be, be deducted from any sum then due or which at any time thereafter may become due to the contractor. The contractor shall pay on demand any balance remaining due.

15.0 NO COMPENSATION FOR ALTERATION IN OR RESTRICTION OF WORK :

If at any time after the commencement of the work, the corporation shall for any reason whatsoever not require the whole or part thereof as specified in the tender to be carried out, the Engineer-in-charge shall give notice in writing of the fact to the contractor, who shall have no claim to any payment or compensation whatsoever 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 derive in consequence of the full amount of the work not having been by reason of any alterations having been made in the original specifications, drawings, designs and instruction which shall not involve any curtailment of the works as originally contemplated.

16.0 RIGHT OF THE CORPORATION TO DETERMINE/TERMINATE CONTRACT :

- i] The Corporation shall, at any time, be entitled to determine and terminate the contract, if in the opinion of the Corporation the cessation of the work becomes necessary owing to paucity of funds or for any other cause whatsoever, in which case the cost of approved materials at the site as verified and approved by the Engineer-in-charge and of the value of the work done to date by the contractor shall be paid for in full at the rate specified in the contract. A notice in writing from the Corporation to the Contractor of such determination and the reason, thereof shall be the conclusive proof of the fact that the contract has been so determined and terminated by the Corporation.
- ii] Should the contract be determined under sub-clause (i) of this clause and the contractor claims payments to compensate expenditure incurred by him in the expectation of completing the whole of the work, the Corporation shall consider and admit such claims as are deemed fair and reasonable and are supported by vouchers to the satisfaction of the Engineer-in-charge. The

decision of the Commissioner on the necessity and propriety of any such expenditure shall be final and conclusive and binding on the contractor.

17.0 DRAWINGS TO BE SUPPLIED BY THE CORPORATION :

17.1 The tender purpose drawings attached herewith give the size for structural concrete works and general civil and other work items involved in the contract. The contractor shall use these drawings for computation of quantities of works.

18.0 SETTING OUT WORKS :

The Engineer-in-charge shall furnish the contractor with only work site and a level bench mark and the contractor shall set out the works and shall provide an efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.

19.0 RESPONSIBILITY FOR LEVEL & ALIGNMENT :

The contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the level and correctness of every part of the work and shall rectify any errors or imperfections therein. Such rectifications shall be carried out by the contractor at his own cost, when instructions are issued to that effect by the Engineer-in-charge.

20.0 CONTROLLED MATERIALS (ESSENTIALITY CERTIFICATE) :

- [i] As regards controlled materials, the corporation will help to arrange for the permit as far as possible and help the contractor in securing the same. All incidental charges not within procuring these materials shall be borne by the Contractor himself. Though the Corporation will help to manage for the permit as far as possible and help the Contractor in obtaining the materials it shall not accept any responsibility for any delay or loss on account of delay caused to the Contractor while obtaining the same.
- [ii] The Contractor shall submit to Engineer-in-charge on close of every calendar month, the monthly returns in the prescribed forms as to the receipt and actual use of the controlled materials during the months.
- [iii] The Contractor shall permit the Engineer-in-charge or his representatives to inspect the stock of the controlled materials stored by him at any time, whenever the Engineer-in-charge or his representative(s) desire(s).

21.0 DISCREPANCIES BETWEEN INSTRUCTIONS :

Should any discrepancy occur between the various instructions furnished to the contractor, his agents or staff, or any doubt arises as to the meaning of any such instruction or, should there be an misunderstanding between the instructor's staff and the Engineer-in-charge's staff, the Contractor shall immediately report the matter in writing to the Engineer-in-charge whose decision thereon shall be final and conclusive and no claim for losses alleged to have been caused by such discrepancies between instructions, doubts or misunderstanding shall in any event be admissible.

22.0 INSPECTION OF WORK :

The Engineer-in-charge or his representative will have full power and authority to inspect the works at any time wherever in progress, either on the site or at the Contractor's premises/ workshops wherever situated, premises/workshop of any

person, firm or corporation where materials are being made or are to be supplied, and the contractor shall afford or procure for the Engineer-in-charge or his representative every facility and assistance to carry out such inspection. The contractor shall at all times during the usual working hours and at all other times at which reasonable notice of the intention of the Engineer-in-charge or his representative 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 the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself. The Contractor shall give not less than seven day's notice in writing to the Engineer-in-charge or his representative before covering up or otherwise placing beyond reach of inspection and measurement any other work in order that the same work may be inspected and measured. In the event of breach of the above, the same shall be uncovered at contractor's expense for carrying out such measurements or inspections.

23.0 TESTS FOR QUALITY OF WORK :

All workmanship shall be of the respective kinds described in the contract documents and in accordance with the instructions of the Engineer-in-charge and shall be subjected from time to time to such tests at Contractor's cost as the Engineer-in-charge may direct at the place of manufacture or fabrication or on the site or at all or any such places. The Contractor shall provide assistance, instruments, labour and materials as are normally required for examining, measuring and testing any workmanship as may be required and selected by the Engineer-in-charge.

24.0 THE CORPORATION MAY DO PART OF THE WORK :

Upon failure of the Contractor to comply with any instructions given in accordance with the provisions of this contract, the Corporation has the alternative right, instead of assuming charge of entire work, to place additional labour force, tools, equipments and materials on such parts of the works, as the Corporation may designate or also engage another Contractor to carry out the work. In such cases, the Corporation shall deduct from the amount which otherwise becomes due to the Contractor, the cost of such work and materials with 10% added to overall departmental charges and should the total amount thereof exceed the amount due to the Contractor, the Contractor shall pay the difference to the Corporation.

25. PROCEDURE OF MEASUREMENT/BILLING OF WORK IN PROGRESS FOR EXTRA ITEMS MEASUREMENTS :

- 25.1 All measurements shall be in metric system as specified by joints measured by the representative of the Engineer-in-charge and the Contractor's authorised agent progressively. Such measurement will be got recorded in the measurement book by the Engineer-in-charge or his authorised representative and signed in token of acceptance by the contractor or his authorised representative.
- 25.2 All works shall be measured not by standard measure and accordance to the rules and custom of the Public Works Department without reference to any local custom.
- 25.3 The measurements of work will be taken according to the usual methods is use in the Public Works Department and no proposals to adept alternative methods will be accepted. The Engineer-in-charge decision as to what is the usual method is use in the Public Works Department will be final.

- 25.4 The rate of any extra item or miscellaneous item to be executed as per Government R&B, Surat / G.W.S.S.B., S.O.R. rate 2005-2006 (+)plus or (-)minus percentage or lower stated in the tender.
- 26.0 **ACCIDENT LIABILITIES :**
The Contractor shall be responsible for all liabilities under workman compensation act, as under :
- (a) On occurrence of accident, resulting in death of workman employed by the Contractor which is so serious as is likely to result in death of such workman who meet with accident, the Contractor shall within 24 hours of accident, will intimate in writing to Engineer-in-charge of such incidence. The Contractor shall indemnify client, against all losses/damages sustained by the client resulting directly or indirectly from his failure to give such intimation to client including penalties/fines if any, payable by client as a consequence of client's failure to give notice under workman's compensation act or otherwise to conform the provision of this act in regard to such accidents.
 - (b) In case when such compensations as above becomes payable under workman's compensation act, whether by contractor or by client as principal employer, it shall be law full for the Engineer-in-charge to retain out of money due and payable to the Contractor, such sum or sums 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.
- 27.0 **INSURANCE :**
The Contractor shall take "All Contract Risk Insurance Policy" for the estimated cost of this work "Work's Man Compensation Policy" for all workers and labours of contractor and client working at site and "Third Party Insurance Policy" to fully cover all third party type risk. The insurance policy so taken by the Contractor for such purposes shall be in the joint name of the Contractor and the client and the policy shall be deposited with the client.
- 28.0 Contractors shall have to use maximum machinery for the work as per the direction of Engineer-In-Charge.
- 29.0 If possible, space for stacking the surplus excavated earth will be provided by SMC. Otherwise the contractor shall arrange for the same at no extra cost to SMC.
- 30.0 **GST CLAUSE FOR CONSTRUCTION / ERECTION /COMMISSONING/ INSTALLATION/ REPAIRS / MAINTENANCE / RENOVATION / FABRICATION OF STRUCTURE INCLUDING BUILDING (MEANS ALL WORKS CONTRACT/TURN KEY PROJECTS/SUPPLY OF MATERIAL/GOODS)**
GST (Goods & Service Tax) has come in Existence from 1st July, 2017. Contractor/Successful Bidder is bound to pay any amount of GST prescribed by the Govt. of India as per the Terms of Contract agreed upon during the course of execution of this contract.
During the course of execution of Contract, if there is any change in rate of GST (Goods & Service Tax) by the Government, the same shall be reimbursed/recovered separately by SMC. subject to the submission of original receipt/proof for the amounts actually remitted by the Successful Tenderer/Contractor to the Competent Authority along

with a certificate from chartered Accountant of Contractor/Successful Bidder certifying that the amount of GST paid to the Government and the same shall be intimated/submitted/claimed within 30 (Thirty) Days from the date of payment. Remittance of GST within stipulated period shall be the sole responsibility of the Successful Bidder/Contractor, failing which, SMC may recover the amount due, from any other payable dues with SMC and decision of Municipal Commissioner shall be final and binding on the Contractor/Successful Bidder in this regard. Further, the non-payment of GST to the Government may lead to the termination of contract and forfeiture of security Deposit/Performance Guarantee Amount.

If imposition of any other new taxes/Duties/Levies/Cess or any other incidentals etc. or any increase in the existing taxes/Duties/Levies/Cess or any other incidentals etc. (Excluding GST) are imposed during the course of the contract, the same shall be borne by the contractor/successful Bidder only, in no case SMC shall be liable for the same.

Executive Engineer
New East (Sarothana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

8.0 PERCENTAGE RATE TENDER & CONTRACT FOR WORKS

- (1) All work proposed to be executed by contract shall be notified in a form of invitation to tender Posted on a board hung up in the Municipal Office and signed by the Commissioner.

This form will state the work to be carried out, as well as the date for submitting and opening tenders, and the time allowed for carrying out the work; also the amount of earnest money to be deposited with the tender, and the amount of the security deposit to be deposited by the successful tenderer and the percentage, if any to be deducted from bills. It will also state whether a refund of quarry fees, royalties, octroi dues ground rents & water-charges will be granted. Copies of the specifications, designs drawings and estimated rates; schedule rates and any other documents required in connection with the work which will be signed by the Executive Engineer, Drainage Department for the purpose of identification shall also be opened for inspection by contractors at the office of the Executive Engineer, Drainage Department during office hours.

Where the works are proposed to be executed according to the specifications recommended by a contractor and approved by a competent authority on behalf of the Surat Municipal Corporation such specification with designs and drawings shall form part of the accepted tender.

- (2) In the event of the tender being submitted by a firm, it must be signed by each partner thereof, and in the event of the absence of any partner, it shall be signed on his behalf by a person holding a power of attorney authorising him to do so.
- (3) Receipt for payments made on account of any work when executed by a firm, should also be signed by all the partners, except where the contractors are described in their tender as a firm, in which case the receipts shall be signed in the name of the firm by one of the partners, or by some other person having authority to give effectual receipt for the firm.
- (4) Any person who submits a tender shall fill up the usual printed form including the column total according to estimated quantities, stating at what rate he is willing to undertake each item of the work. Tenders which propose any alteration in the work specified in the said form of invitation to tender, or in the time allowed for carrying out the work, or which contain any other conditions of any sort, will be liable to rejection. No single tender shall include more than one work, but contractors who wish to tender for two or more works shall submit a separate tender for each. Tenders shall have the name and the number of the works to which they refer written outside the envelope.
- (5) The Commissioner or his duly authorised Assistant will open tenders in the presence of any intending contractors who may be present at the time, and will enter the amounts of the several tenders in a comparative statement in suitable form. In the event of a tender being accepted, the contractors shall thereupon, for the purpose of identification sign copies of the specifications and other documents mentioned in Rule.1. In the event of a tender being rejected the deposit will be refundable on application.
- (6) The Municipal Corporation shall have the right of rejecting all or of the tenders without assigning any reason.
- (7) No receipt for any payment alleged to have been made by a contractor regard to any matter relating to this tender or the contract shall be valid and binding on Municipal Corporation unless it signed by the Executive Engineer, Drainage Department.

- (8) The memorandum of work to be tendered for and the schedule of materials to be supplied by the Municipal Corporation and their rates shall be filled in and completed by the office of the Executive Engineer, Drainage Department before the tender form is issued. If a form issued to an intending tenderer has not been so filled in and completed, he shall request the said office to have this done before he completes and delivers his tender.
- (9) All work shall be measured net by standard measure and according to the rules and custom of the Municipal Department of Surat Municipal Corporation without reference to any local custom.
- (10) Under no circumstances shall any contractor be entitled to claim enhanced rates for any items in this contract.
- (11) Every contractor shall, if so desired by the Commissioner, produce along with his tender a banker's certificate of his financial stability. If he fails to produce such a certificate his tender will not be considered.
- (12) All corrections and additions or pasted slips should be initialed.
- (13) The measurements of work will be taken according to the usual method in use in the Drainage Department and no proposals to adopt alternative methods will be accepted. The Commissioner's decision as to what the usual method in use in the Drainage Department will be final.
- (14) The tender for work shall remain open for a period of 120 days from the date of opening of the tender for this work and that the tenderer shall not be allowed to withdraw or modify the offer on his own during this period. If any tenderer withdraws or makes any modifications of additional in the terms and conditions of his tender not acceptable to the corporation shall without prejudice to any right or remedy be at liberty to forfeit in full the said earnest money absolutely.

Executive Engineer
New East (Sarothana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

9.0 PREAMBLE TO TECHNICAL SPECIFICATION (PRICE - BID)

- 1.0 The Schedule of Quantities and Rates are to be read for the purpose of pricing in conjunction with instructions of tenderers, technical specifications, drawings and General conditions for contract for Civil works.
- 2.0 The price quoted in the summary of costs, sheets of schedule of quantities and rates shall be of all inclusive value for the work described including all costs and expenses which may be required in for the execution of the work described together with all general risks, liabilities and obligations set forther or implied in the document on which the tender is based.
- 3.0 The quantities furnished are approximate. In the even of actual quantities varying from those furnished herein below or items detailed or added, the percentage (Plus/Minus) quoted for the entire work shall remain, firm and no extra claims in this respect will be entertained. The payment shall be made based on the actual quantities in the complete work.
- 4.0 All works shall be carried out strictly as per detailed specification whether actually specified or not. If not specified, as per directions of owner/Engineer-in-charge.
- 5.0 Percentage (Plus/Minus) quoted by tenderer shall be firm even if the contract is split.
- 6.0 Percentage (Plus/Minus) and the total amount entertained in the summary of cost, sheet of schedule of quantities and Rates shall be written INk and shall be entered both in figures and words.
- 7.0 Detailed specifications of items of work are described under section Detailed Technical Specification for each item of schedule of quantities and Rates. The section gives guidelines to the reference of relevant clauses of specifications and mode of measurement. Tenderer shall read this in conjunction with other technical specifications and quote accordingly.
- 8.0 The measurements shall be as described in the detailed Technical specification of items of work, all measurements being not in accordance with the drawings with no allowance for waste.
- 9.0 If Tenderers need any clarifications, they should obtain the same in writing from Owner/Engineer-in-charge. No notice will be taken of any verbal discussion in such matters.

mm	Millimetres
cm	Centimetres
mt.	Metres
Km.	Kilometres
Sq.mt.	Square Metres
Cu.mt.	Cubic Metres
R.Mt.	Running Metres
No.	Numbers
C.I.	Cast Iron
R.C.C.	Reinforced Cement Concrete
Wt.	Weight
Kg.	Kilogramme

M.T.	Metric Tonne
M.D.	Metre Depth
M.S.	Mild Steel
I.S.	Indian Standard

10.0 SCHEDULE – A

ADDITIONAL INSTRUCTION FOR CEMENT AND STEEL :

Surat Municipal Corporation shall not issue cement and reinforcement steel to be used for this work.

The cement and reinforcement steel required for the above said work shall be procured by contractor at its own cost.

The brands for cement shall be Ultratech, Ambuja, Sanghi, Siddhi, J K Laxmi, Hathi (53 Grade) company confirming to IS-12269/87 latest amendment ISO-9000 of 53 grade only. As per Standing Commity Resolution No. 1362/2018, Dt. 01/11/2018 also the brands for cement shall be wonder cement ltd., Chittorgarh, Rajasthan company confirming to IS-1269/2013 latest amendment 53 grade only.

Approved make of TMT reinforcement steel :- TATA, SAIL, Rastriya Ispat, Electrotherm (ET), Ramswaroop, National, JSW, Gallantt Metal Ltd. as per confirming to IS 1786/85 latest amendment TMT Fe-415/Fe-500. TMT Steel shall be purchased by only manufacturing company/Authorised dealer/ Distributor/ Stockist only shall be allowed to use 6 mm plain steel shall be as per IS 2062/99 with latest emendment of any brand/make.

Any of the above mentioned brands of Cement and Reinforcement steel shall only be used by the contractor at the time of execution.

WASTAGE OF CEMENT AND REINFORCEMENT STEEL :

As the contractor is to bring the cement and steel, the question of considering the wastage on the basic of issue rate does not arise i.e. no separate payment shall be made for any kind of wastage in the materials. The payment for reinforcement bar will be made on theoretical weight basis. The weight shall be computed on the basis of the length of the steel used in the work multiplied by the standard unit weight of TMT bar as mentioned in IS code No. 1786, IS-432 or IS-226.

The steel consumption less than 7.5% of the standard consumption shall be penalized at the double existing corporation issue rate (RAC Circular no. RAC/Out/no.458, dt. 08/07/2024 High Strength TMT steel is Rs.51,500.00 per M.T. and High Strength TMT CRS steel is Rs. 54,000.00 per M.T.)(WITHOUT GST) Similarly, for cement also, the less consumption beyond 5% shall be penalized at the double existing corporation issue rate (RAC Circular no. RAC/Out/no.458, dt. 08/07/2024 Cement is Rs.5000.00 per M.T.) (WITHOUT GST) .

TESTING OF CEMENT AND STEEL :

It should be specifically noted that the cement and steel brought by the contractor at site of work shall be used only after the same is tested at the approved laboratory as per the direction of the Engineer-in-charge. Such approved laboratory may be located at Surat, Baroda, Ahmedabad or Mumbai.

All the charge for the transport and testing of the samples shall have to be borne by the contractor. The frequency of testing such material shall be in accordance to the relevant Indian Standards as directed by Engineer-in-charge.

Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

11.0 MEMORANDUM

1.	General Description of work	:	Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.
2.	Estimated Cost	:	Rs. 99,75,158.12
3.	Earnest Money Deposit	:	Rs. 1,00,000.00
4.	Security Deposit	:-	2% of Tender value after issuing Work Order
	(i) Initial Security Deposit		
	(ii) To be Deduced From R.A. Bill	:	Rs. 2.00 % of Total Work Done
	Total Deposit	:	Rs. 4% of Tender Amount
5.	Time allowed for the completion of work from date fixed in written order to commence	:	12 (Twelve) months (INCLUDING MONSOON)
6.	Compensation for delayed work under GC 20A	:	Zero Point two percent (0.2%) of the contract price per day maximum up to ten percent (10%) of the contract price.
7.	The progress of work should confirm to the following schedule		
	10% of the work in 40% of the work in 70% of the work in 100% of the work in	:	25% of the time. 50% of the time. 75% of the time. 100 % of the time
8.	Percentage to be retained from running Account Bills	:	5% (Five Percent) (refer GC-10)
9.	Defect Liability Period	:	12 (Twelve) Months From the date of actual completion of work.
10.	Water Charges	:	CONDITION FOR THE WATER SUPPLY & ELECTRIC SUPPLY on next page.
12.	Construction Cess will be deducted from respective R.A. Bill and Final bill in accordance with the prevailing norms of Govt. of Gujarat.	:	1% of Work Done Amount in R.A.Bills and Final Bill

Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

12.0 CONDITION FOR THE WATER SUPPLY & ELECTRIC SUPPLY FOR WATER CHARGE (As per City Engineer Note No.386, dtd.30/7/2012)

In case of Municipal Network or distribution center avail or not at nearby area

OPTION-1:

Contractor has to make his own arrangement for construction work whether from private boring or tankers. Contractor has to submit test report of water whether it is of good quality for construction work or not and contractor has to inform about it **within 30 days of starting the work.**

OPTION-2:

If contractor wants to use Municipal Water he has to follow procedure within below:

1. Contractor has to apply for water connection by Municipal Licensed plumber in prescribed form.
 2. Contractor has follow all procedure with his own expenses.
 3. According to rule Municipal Corporation issue bill to contractor for consumption of water and contractor has to paid it within stipulated time and contractor has submit one copy of bill and payment receipt to concern department. If contractor fail to pay the bill the amount of bill/paid receipt can be recover from contractor's bill.
 4. If Municipal Corporation network is not available then Contractor can make arrangement of water tanker from nearby distribution center after depositing required amount.
 5. After completion of work contractor has to cancelled the water connection and inform the concern department.
 6. If network and distribution center/network are both not available in that case contractor has to make his own arrangement for good quality construction water and has to follow **the option-1.**
- (2) The contractor shall make his own arrangement at his cost for electric supply required for operating various plants and machineries required for the works and for general lighting purpose for site, office labor colony etc. The energy bills shall also be paid by the contractor.

Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation

SIGNATURE OF THE CONTRACTOR.

13.0 GENERAL SPECIFICATIONS

1.0 GENERAL :

- 1.1 All the items occurring in the work and as found necessary during actual execution shall be carried out in the best workman like manner as per specification and the written order of the Engineer-in-charge.
- 1.2 Extra claim in respect of extra work shall be allowed only in such work is ordered to be carried out in writing by the Engineer-in-charge.
- 1.3 The Contractor shall engage a qualified Engineer for the Execution of work who will remain present for all the time on site and will receive instructions and orders from the Engineer-in-charge or his authorised representative. The instruction and orders given to the contractor's representative on site shall be considered as it will be to the contractor himself.
- 1.4 The work order book as prescribed shall be maintained on the site of the work by the Contractor and the contractor shall sign the orders given by the inspecting officers and shall carry out them properly.
- 1.5 Quantities specified in the tender may vary at the time of actual execution and the contractor shall have no claim for compensation on account of such variation.
- 1.6 Figured dimensions of drawings shall supercede measurements by scale,. Special dimensions of directions in the specification shall supercede all other dimensions.
- 1.7 Use of I. S. Code shall mean its latest applicable version for respective items.

2.0 CLASSIFICATION OF STRATA :

- 2.1 All materials encountered in excavation will be classified in the following groups irrespective of excavating the materials and the decision of the Engineer-in-charge in the regard shall be final and binding to the contractor.

2.2 SOILS :

Soils of all sorts, silt, sand gravel soft murrum, stiff clay, kankar and other soft excavation not covered in the item mentioned hereunder.

2.3 HARD MURRUM :

Hard materials comprising of all kinds of disintegrated rock or shale of indurated conglomerate interspersed with boulders of size between 0.02 Cu.mt. and 0.75 Cu.mt., weathered and decomposed rock which could be removed with pick, bar shovel, wedges and hammers, though not without some difficulties.

2.4 SOFT - ROCK :

This shall include all materials which is rock but which does not need blasting and can be removed with a pick, bar, wedges, pavement breakers, pneumatic tools etc.

3.0 DIVERSION OF FLOW THROUGH STORM WATER DRAINS DURING CONSTRUCTION :

Since the construction of the proposed gate bay portion is envisaged during non-monsoon period, no storm water drainage flow is expected through the existing storm water drains. However, to cater for small quantum of other drainage flow that is being diverted into this storm water drain, diversion of such flow shall be necessary during the construction. The scheme of diversion proposed is as under :

- (a) Both the pipes may be temporarily blocked for a day or two by controlling the drainage flow into these pipes, and the R.C.C. raft in the entire gate bay portion may be constructed.
- (b) Flow through one pipe is allowed by constructing a temporary brick masonry wall in lean mix mortar covering half portion of gate bay portion towards the other pipe which is temporarily plugged.
- (c) Construction in this portion is started and the R.C.C. wall is taken upto a ht. of about 3 to 4 ft.
- (d) The flow in the other pipe is then stopped by temporarily plugging the pipe and allowing the flow through the constructed portion. The area towards the plugged pipe shall be covered by brick masonry wall barrier.
- (e) After the R.C.C. wall is taken upto about 4 ft. ht. on this side, the flow through both the pipes shall be allowed and the further construction shall be completed.

The diversion scheme shall be got approved from the Engineer. The cost of the diversion scheme shall be deemed to have been covered up in the rates quoted for the various items of Schedule-B

Executive Engineer
New East (Sarothana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

14.0 DETAILS SPECIFICATION OF MATERIAL

M-1 WATER :

- 1.1 Water shall not be salty or brackish and shall be clean reasonably clear and free from objectionable quantities of silt and tract of oil and injurious alkalies, salts, organic mater and other deleterious materials which will either weaken the mortar or concrete or cause efflorescence of attach the steel in R.C.C. Container for transport, storage and handling of water shall be clean. Water shall conform to the standards specified in I.S. 456-1978.
- 1.2 If required by the Engineer-in-charge it shall be tested by comparison with distilled water. Comparison shall be made by means of standard cement tests for soundness, time of setting and mortar strength as specified in I.S. 269-1976. Any indication of unsoundness, charge in time of setting by 30 minutes or more or decrease of more than 10 percent in strength of mortar prepared with water sample when compared with the results obtained with mortar prepared with distilled water shall be sufficient cause for rejection of water under test.
- 1.3 Water for curing mortar, concrete or masonry should not be too acidic or too alkaline. It shall be free of elements which significantly affect the hydration reaction or otherwise interfere with the hardening of mortar or concrete during curing or those which produce objectionable stains or other unsightly deposits on concrete or mortar surfaces.
- 1.4 Hard and bitter water shall not be used for curing.
- 1.5 Potable water will be generally found suitable for curing mortar or concrete.

M-2 CEMENT :

- 2.1 Cement shall be ordinary portland slag cement as per I.S. 269-1976 or portland slag cement as per I.S.455-1976.

M-3 SAND :

- 3.1 Sand shall be natural sand, clean, well graded, hard strong, durable and gritty particles free from injurious of dust, clay, kankar nodules, soft or flaky particles shale, alkali salts, organic matter, loam, mica or other deliterious substances and shall be got approved from the Engineer-in-charge. The sand shall not contain more than 8 percent of silt as determined by field test. If necessary the sand shall be washed to make it clean.

3.2 COARSE SAND :

The fineness modulus of coarse sand shall not be less than 2.5 and shall not exceed 3.0. The sieve analysis of coarse shall be as under :

I.S.Sieve Designation	Percentage by weight passing sieve	I.S.Sieve Designation	Percentage by weight passing sieve
4.75 mm	100	600 Micron	30-100
2.36 mm	90-100	300 Micron	5-70
1.18 mm	70-100	150 Micron	0-50

3.3 FINE SAND :

The fineness modulus shall not exceed 1.0. The sieve analysis of fine sand shall be as under :

I.S.Sieve Designation	Percentage by	I.S.Sieve Designation	Percentage by
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	weight passing sieve		weight passing sieve
4.75 mm	100	600 Micron	40-85
2.36 mm	100	300 Micron	5-50
1.18 mm	75-100	150 Micron	0-10

M-4 STONE GRIT :

4.1 Grit shall consist of crushed or broken stone and be hard, strong dense, durable, clean, of proper gradation and free from skin or coating likely to prevent proper adhesion of mortar. Grit shall for as possible flaky elongated pieces shall be avoided.

It shall generally comply with the provisions of I. S. 383-1970. Unless special stone of particular quarried is mentioned. Grit special stone of particular quarries is mentioned. Grit shall be obtained from the best black trap or equivalent hard stone as approved by the Engineer - in - charge. The grit shall have no deleterious reaction with cement.

4.2 The grit shall conform to the following gradation as per sieve analysis :

I.S.Sieve Designation	Percentage by weight passing sieve	I.S.Sieve Designation	Percentage by weight passing sieve
12.50	100%	4.75	0.20%
10.00	85-100%	2.36	0.25%

4.3 The crushing strength of grit will be such as to allow the concrete in which it is used to build up the specified strength of concrete.

4.4 The necessary tests for grit shall be carried out as per the requirements of I. S. 2386 (Parts I to VIII) 1963, as per instruction of the Engineer-in-charge. The necessity of test will be decided by the Engineer-in-charge.

M-5A STONE COARSE AGGREGATE FOR NOMINAL MIX CONCRETE :

5A.1 Coarse aggregate shall be of machine crushed stone of black trap or equivalent and be hard, strong, dense, durable, clean and free from skin and coating likely to prevent proper adhesion of mortar.

5A.2 The aggregate shall generally be cubical in shape. Unless special stones of particular quarries are mentioned, Aggregates shall be machine crushed from the best black trap or equivalent hard stone as approved. Aggregate shall have no deleterious reaction with cement. The size of the coarse aggregate for plain cement concrete and ordinary reinforced cement concrete shall generally be as per the table given below. However in case of reinforcement cement concrete the maximum limit may be restricted to 6 mm less than the minimum lateral clear distance between bars of 6 mm. less than the cover whichever is smaller.

TABLE

I.S.Sieve Designation	Percentage Passing for single sized aggregates of nominal size			I.S.Sieve Designation	Percentage Passing for single sized aggregates of nominal size		
	40 mm	20 mm	16 mm		40 mm	20 mm	16 mm
80 mm	-	-	-	12.5 mm	-	-	-
63 mm	100	-	-	10.0 mm	0.5	0.20	0.30
40 mm	85-100	100	-	2.35	-	0.50	0.50
20 mm	0-20	85-100	100	2.35 mm	-	-	-
16 mm	-	-	-	85-100	-	-	-

NOTE :- The percentage may be varied by the Engineer-in-charge when considered necessary for obtaining better density and strength of concrete.

- 5A.3 The grading test shall be taken in the beginning and at the change of source of materials. The necessary tests indicated in I.S. 383-1970 I. S. 456-1978 shall have to be carried out to ensure the acceptability. The aggregates shall be stored separately and handled in such a manner as to prevent the inter mixed on different aggregates. If the aggregates are covered with dust, they shall be washed with water to make them clean.

M-5B BLACK TRAP OR EQUIVALENT HARD STONE COARSE :

- 5B.1 Aggregate for Design Mix concrete : Coarse aggregate shall be of machine crushed stone of black trap or equivalent hard stone and be hard, strong, dense, durable clean and free from skine and coating likely to prevent proper adhesion of mortar.
- 5B.2 The aggregates shall generally be cubical in shape. Unless special stoness of particular quarries are mentioned, aggregates shall be machine crushed from the best, black trap or equivalent hard stones as approved. Aggregate shall have no deleterious reaction with cement.
- 5B.3 The necessary tests indicated in I. S. 383-1970 and I.S.456-1978 shall have to be carried out to ensure the acceptability of the material.
- 5B.4 If aggregate is covered with dust it shall be washed with water to make it clean.

M-6 BRICKS :

- 6.1 The bricks shall be hard or machine moulded and made from suitable soils and kiln burnt. They shall be free from cracks and flaws and nodules of free lime. The shall have smooth rectangular faces with sharp corners and shall be of uniform colour. The bricks shall be moulded with a frog of 100 mm x 40 mm and 10 mm to 20 mm deep on one of its flat sides. The bricks shall not break when thrown on the ground from a height of 600 mm.
- 6.2 The size of modular bricks shall be 190 mm x 90 mm.
- 6.3 The size of the conventional bricks shall be as under :

$$\begin{array}{ccc} 3'' & 3'' & \\ (9'' \times 4\frac{3}{4}'' \times 2\frac{3}{4}'') & 225 \times 110 \times 75 \text{ mm.} & \end{array}$$

- 6.4 Only bricks of one standard size shall be used on one work. The following tolerance shall be permitted in the conventional size adopted in a particular work.
Length : = 1/8" (3.0 mm) Width : = 1/16" (1.50 mm)
Height : = 1/16" (1.50 mm)
- 6.5 The crushing strength of the bricks shall not be less than 35 Kg/Sq.cm. The average water absorption shall not be more than 20 percent by weight. Necessary tests for crushing strength and water absorption etc. shall be carried out as per I.S. 3495 (Part-I to IV) - 1976.

M-6A FLY-ASH LIME BRICKS :

The fly ash lime bricks shall conform to Grade-1 or Grade-2 of IS-3812-1981. The frog of the 80 to 100 mm x 40 mm x 10 to 20 mm size.
The size of modular bricks shall be 190 mm x 90 mm x 90 mm.
The size of conventional brick shall be 225 mm x 110 mm x 75 mm.

Only bricks of one standard size shall used on one work. The following tolerances shall permitted in the conventional size adopted in a particular work:

Length : + 3 mm

Width : + 3 mm

Height : + 2 mm

The physical characteristic of bricks shall be as follows.

The minimum compressive strength of fly ash lime bricks shall not be less than 75 Kg/Sq.Cm. and the test shall be conform to IS-3495 (Part-I):1992.

The average drying shrinkage of the brick when tested by the method described in IS 4139-1989 being shall not exceed 0.15 percent.

The averages wate absorption not more than 20 percentage by mass and the test shall conform to IS-3495 (Part-3):1992.

M-7 MILD STEEL BARS :

- 7.1 Mild steel bars reinforcement for R.C.C. work shall conform to I.S. 432 (Part-II) 1966 and shall be tested quality. It shall comply with relevant part of I.S.456-1978.
- 7.2 All the reinforcement shall be clean and free from dirt, paint, grease, mill scale or loose of thick rust at the time of placing.
- 7.3 For the purpose of payment the bar shall be measured correct upto 10 mm length and weight payable worked out the rate specified below :

(i)	6 mm	0.22 Kg/Rmt.
(ii)	8 mm	0.39 Kg/Rmt.
(iii)	10 mm	0.62 Kg/Rmt.
(iv)	12 mm	0.89 Kg/Rmt.
(v)	14 mm	1.21 Kg/Rmt.
(vi)	16 mm	1.58 Kg/Rmt.
(vii)	18 mm	2.00 Kg/Rmt.
(viii)	20 mm	2.47 Kg/Rmt.
(ix)	22 mm	2.98 Kg/Rmt.
(x)	25 mm	3.85 Kg/Rmt.
(xi)	28 mm	4.38 Kg/Rmt.
(xii)	32 mm	6.32 Kg/Rmt.
(xiii)	36 mm	8.00 Kg/Rmt.
(xiv)	40 mm	9.86 Kg/Rmt

M-8 TMT FE-415 STEEL BARS FOR REINFORCEMENT :

- 8.1 Reinforcement bars shall conform to IS-432, IS-226 or IS-1786 and welded wire fabrics to IS : 1566. Only TMT bars for reinforcement in RCC duct shall be used which shall be clean, free from pitting, oil, grease, paint, loose mill scale, rust, dirty dust or any other such substance that will destroy or reduce bond.
It permitted by the Engineer-in-charge reinforcement shall be done in accordance with IS-2751 or IS-9147 as applicable.
- 8.2 Other provision and requirements shall conform to specification No. M-7 for mild steel bars.

M-9 MILD STEEL BINDING WIRE :

- 9.1 The mild steel wire shall be of 1.63 mm or 1.22 mm (16 or 18 gauge) diameter and shall conform to I.S. 280-1972.
- 9.2 The use of black wire will be permitted for binding reinforcement bars. It shall be free from rust, oil paint grease, loose mill scale or any other undesirable coating which may prevent adhesion of cement mortar.

M-10 STRUCTURE STEEL :

- 10.1 All structural steel conform to I.S.226 - 1965. The steel shall be free from the defects mentioned in I.S. 226-1975 and shall have a smooth finish. The material shall be free from loose mill scale, rust pits or other defects affecting the strength and durability. Rivert bars shall conform to I.S. 1148-1973.
- 10.2 When the steel is supplied by the contractor test certificate of the manufacturers shall be obtained according to I.S. 226-1975 and other relevant Indian Standards.

M-11 SHUTTERING :

- 11.1 The shuttering shall be either of wooden planking of 30 mm. minimum thickness with or without steel lining or of steel plates stiffened by steel angles. The shuttering shall be supported on battens and beams and props of vertical ballies properly cross braced together so as to make the centering rigid. In places of bullie props, brick pillar of adequate section built in mud mortar may be used.
- 11.2 The form work shall be sufficiently strong and shall have camber, so that it assumes correct shape after deposition of the concrete and shall be able to resist forces caused by vibration of live load of men working over it and other incidental loads associated with it. The shuttering shall have smooth and even surface and its joints shall not permit leakage of cement grout.
- 11.3 If at any stage of work during or after placing concrete in the structure, the form sags or bulges out beyond the required shape of the structure, the concrete shall be removed and work redone with fresh concrete and adequately rigid form work. The complete form work shall be got inspected by and got approved from the Engineer-in-charge, before the reinforcement bars are placed in position.
- 11.4 The props shall consist of bullies having 100 mm minimum diameter measured at mid length and 80 mm at thin end and shall be placed as per design requirement. These shall rest squarely on wooden sole plates 40 mm thick and minimum bearing area of 0.10 Sq.m. laid on sufficiently hard base.
- 11.5 Double wedges shall further be provided between the sole plate and the wooden props so as to facilitate tightening and easing of shuttering without jerking the concrete.
- 11.6 The timber used in shuttering shall not be so dry as to absorb water from concrete and swell or bulge nor so wet to shrink after erection. The timber shall be properly sawn and planned on the sides and the surface coming in contract with concrete. Wooden form work with metal sheet lining or steel plates stiffened by steel angles shall be permitted.
- 11.7 As far as practicable, clamps shall be used to hold the forms together and use of nails and spikes avoided.
- 11.8 The surface of timber shuttering that would come in contact with concrete shall be well wetted and coated with soap solution before the concreting is done. Alternatively coat of raw linseed oil or oil of approved manufacture may be applied in place of soap solution. In case of steel shuttering either soap solution or raw linseed oil shall be applied after thoroughly cleaning the surface. Under no circumstances black or burnt oil shall be permitted.

- 11.9 The shuttering for beams and slabs shall have camber of 4 mm per meter (1 in 250) or as directed by the Engineer-in-charge so as to offset of subsequent deflection for cantilevers the camber at free end shall be $1/50$ of the projected length or as directed by the Engineer-in-charge.

Executive Engineer
New East (Sarothana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

Manufacturing of NP3 and NP4 class R.C.C. Pipes and collars.

1. MATERIALS:

For precast concrete pipes, materials, complying with the requirements given below shall be used.

(A) CEMENT:

Cement used for the manufacture of unreinforced and reinforced concrete pipes shall confirm to I.S. 269-1967 or I.S. 455-1989 or I. S. 1489-1967 or 1489-1976 or IS - 8041-1978 or IS - 8043-1978 or IS - 8112-1976.

(B) AGGREGATES:

Aggregates used for the manufacture of reinforced concrete pipes shall conform to I.S. 383-1976. The maximum size of aggregate should not exceed one third the thickness of the pipe or 20 mm which ever is smaller for pipes above 250 mm internal diameter of 80 to 250 mm the maximum size of aggregate should be 10 mm.

NOTE: It is preferable to have the size and grading aggregates conforming to IS-383-1970. It is also preferable that materials finer than 75 micron IS-Sieve is restricted to 3 percent by mass.

(C) REINFORCEMENT:

Reinforcement used for the manufacture of the reinforced concrete pipes shall be mild steel grade I or medium tensile steel bars conforming to I.S. 432 (Part-I) 1982 or hard drawn steel wire conforming to I. S. 432 (Part-II) 1982 or structural steel (Standard Quality) bars conforming to IS-226-1975 where soft grade wire is used it shall conform to I.S. 280-1978.

NOTE: - Wire fabric conforming to IS-1566-1982 or deformed bars and wires conforming to IS-1786-1985 may also be used.

(D) CONCRETE OR MORTAR:

Concrete used for manufacture of reinforced concrete pipes and collars shall conform to I.S. 458-2003.

(a) The concrete for non-pressure pipes shall have a minimum cement concrete of 360 Kg/Cumt. and a minimum compressive strength of 20 N/Sq.mm. at 28 days. If mortar is used it shall have a minimum cement content of 450 Kg/Cu.mt. and a compressive strength not less than 20 N/Sq.mm. at 28 days. The concrete for pressure pipes shall a minimum content of 450 Kg/Cu.mt. and a minimum compressive strength of 25 N/Sq.mm. at 28 days. If mortar is used, it shall have a minimum cement of 600 Kg/Cu.mt. and a compressive strength not less than 25 N/Sq.mm. at 28 days.

Where the process of manufacture is such that the strength the concrete or mortar in the pipe differs from that given by test on cubes the two may be related by a suitable conversion factor. If the purchaser required evidence of this factor, he shall ask for it before placing the order. The conversion factor for 28 days compressive strength for spun concrete may be taken at 1.25 in the absence of any data.

Compressive strength tests shall be conducted on 15 cm cubes in accordance with the relevant requirements of I.S. 456-2000 and I.S. 516-1959. if so required by the purchaser the manufacturer shall give a certificate indicating the quantity of cement in the concrete mix.

DESIGN

REINFORCEMENT:

The reinforcement in the reinforced concrete pipe shall extend through out the length of the pipe and shall be so designed that it may be readily placed and maintained to designed shape and in the proper position within the pipe mould during the manufacturing process. The circumferential and longitudinal reinforcement shall be adequate to satisfy the requirement specified in table-2.

For non-welded lages spiral reinforcement of the same diameter shall be closely spaced at the end of the pipe for a length of 150 mm to minimize damage during handling. The spring of such end spirals shall not exceed 50 mm or half the pitch whichever is less than such spiral reinforcement at ends shall be part of the total spirals reinforcement specified in different table.

The pitch of the circumferential reinforcement shall be not more than the following:

- (a) 200 mm for pipes of nominal internal diameter 80 to 150 mm.
- (b) 150 mm for pipes of nominal internal diameter 200 to 350 mm.
- (c) 100 mm for pipes of nominal internal diameter 400 and above.

The pitch shall also be not less than the maximum size of aggregate plus the diameter of reinforcement bar used.

If so required by the purchaser, the manufacturer shall give a certificate indicating the details relating to quality quantity and dispersion of steel in the pipe as well as the clear cover to the steel provided in the pipe.

ENDS OF PIPES: - The ends of concrete pipes shall be suitable for butt and joints for all classes of pipe. Dimensions of collars shall be according the details given in table-2 the reinforcement for the collars shall be as given in table-2. The end of the collar reinforcement shall have a full ring at both ends and the longitudinal reinforcement shall be proportional to the length of the collar.

TABLE – 1 : Attached Separately

TABLE – 2 : Attached Separately

COVER: The minimum clear cover for reinforcement in pipe and collars shall be as given below.

Barrel thickness -----	Minimum clear cover. -----
(1) Up to and including 25 mm	6
(2) Over 25 mm and up to & including 30 mm	8
(3) Over 30 mm and up to & including 75 mm	10
(4) Over 75 mm	15
(5) At the end of longitudinal	5

3. MANUFACTURE:

(A) GENERAL

The methods of manufacture shall be such that the form and the dimensions of the finished pipe are accurate within the limit specified in Indian Standard No.458. The surface and edges of the pipes shall be well defined and true and their ends shall be square with the longitudinal axis. The ends of the pipes shall be further reinforced by an extra ring of reinforced to avoid breakage during transportation.

(B) CONCRETE MIXING:

Concrete shall normally be mixed in a mechanical mixer. Mixing shall be continued until there is a uniform distribution of the materials and the mass is uniform in colour and consistency, but in no case shall the mixing be done for less than two minutes.

The concrete shall be placed before setting has commenced. It shall be ensured that the concrete is not dropped freely so as to cause segregation. The concrete shall be consolidated by spinning, vibrating, spinning combined with vibrations, or other appropriate mechanical means.

(C) REINFORCEMENT CAGES:

Reinforcement cages for pipes shall extend throughout the pipe barrel and shall be wound round normal collapsible frames or drums. The cages shall consist of spiral or rings and straight of an nailed wire cold drawn wire or mild steel rod and may be circular cages shall be placed symmetrically with the thickness of the pipe wall.

The spiral shall end in a complete ring at both the ends of a pipe.

Pipes having barrel thickness 100 mm and above shall have double reinforcement cage and the amount of spiral steel in the outer cage shall be 75 percentage of the mass of spiral steel in the inner cage, while the total conform to requirements specified in the relevant table of this standard.

The mass of longitudinal in the outer cage and inner cage should be the same that is equal to half the total mass of longitudinal specified in the relevant tables.

Diagonal reinforcement may be provided in pipes for which the cages are not welded so as to help in binding the cage securely. It shall however be ensured that the clear cover for any reinforcement is not below the limit specified. The diagonal reinforcement is a process requirement and shall not be counted against longitudinal and spiral reinforcement.

It is preferable that single reinforcement cage should be located near the inner surface of the pipe with adequate clear cover.

(D) CURING :

(i) Water Curing :

Pipes manufactured in compliance with this standard shall be cured by immersion in water for a period of not less than two weeks in case of pipes made from ordinary Portland cement or 43 grade ordinary Portland cement, pipes may be water cured by immersing in water covering with water saturated material or by a

system of perforated pipes, mechanical sprinklers porous hose, or by any other approved method that will keep pipe during the specified curing period. In the case of large pipe projecting partly above water level, the projecting portion shall be kept wet by any suitable means.

(ii) Steam Curing:

Steam curing of concrete pipes may be permitted provided the requirement of pressure and non-pressure steam curing is fulfilled and pipes conform to the requirements of this specification.

WORKMANSHIP AND FINISH:

Pipes shall be straight and free from cracks excepting craze cracks. The ends of the pipes shall be square with their longitudinal axis so that when placed in a straight in the trench on opening between ends in contact shall exceed 3 mm in pipes up to 600 mm diameter (inclusive) and 6 mm in pipes larger than 600 mm diameter.

The outside and inside surface of the pipes shall be smooth, dense and hard and shall not be coated with cement wash or other preparation unless otherwise agreed to between the purchaser and the manufacture or supplier. For better bends inner surface of the collar may be finished rough.

The pipes shall free from defects resulting from imperfect grading of the aggregate mixing or moulding. Pipes shall be free from load bents or bulges greater than 3.00 mm in depth and extending ever a length in any direction greater than twice the thickness of barrel. Pipes may be repaired, if necessary, because of accidental injury during manufacture or handling and shall be accepted if in the opinion of the Corporation the repairs and mould and appropriately finished and cured and the repaired pipe forms to the requirements of this specification.

Deviation from Straight : The deviation in straight in any pipe throughout its effective length, tested by means of rigid straight edge parallel to the longitudinal axis of the pipe shall not exceed, for all diameters 3 mm for every meter run.

TESTING:

All pipes for testing purpose shall be selected at random from the stock of the manufacturer and shall be such as would not otherwise be rejected under this standard.

At production of each lot of pipe of each diameter the testing shall be done for each lot of pipes as per I.S. 3597-1998 & 458-1988.

- (A) The number of test specimens shall be taken as per table No.1 The following test shall be carried out for each lot.
- (1) Three-edge bearing test or load test.
 - (2) Hydrostatic test.
 - (3) Dimensions.
 - (4) Workmanship & finish.

- (1) **Three edge bearing test or load test:**

Load shall be taken as per table-2

1.1 Apparatus:

- 1.1.1 Testing Machine: - Any mechanical or hand-powered device may be used in which the head that applies the load moves at such a speed as to increase the load at a uniform rate of approximately 200 percent of the expected crushing load per linear metre per minute. The loading device shall be calibrated within an accuracy of ± 2 percent. The testing machine used for the load tests should produce a uniform deflection throughout the full length of the pipe and shall be so substantial and rigid throughout, that the distribution of the test load along the length of the barrel of the pipe will not be appreciably affected by the deformation or yielding or any part of the machine during the application of the load lower and upper bearing shall be as per I.S. 3597-1998.
- 1.1.2 The equipment shall be so designed that the load will be distributed about the centre of the overall length of all pipe. The load may be applied either at a single point or at multiple points dependent on the length of the pipe being tested and the rigidity of the test frame.

1.1.3 Procedure :

The specimen shall be placed on the two bottom bearing strips in such a manner that the pipe rests firmly and with the most uniform possible bearing on each strip for the full length of the pipes less the socket portion, if any.

If mutually agreed upon by the manufacturer and the Corporation prior to the test, before the pipe is placed, a fillet of plaster of Paris not exceeding 25 mm in thickness may be cast on the surface of the upper and lower bearings. The width of the fillet cap, top or bottom, shall be not more than 25 mm per 300 mm diameter, but in no case less than 25 mm. .LM 10

- 1.1.3.2 Each end of the pipe at a point mid-way between the lower bearing strips shall be marked and then diametrically opposite points thereof shall be established. The top bearing block shall be so placed that it contracts the two ends of the pipe at these marks. After placing the specimen in the machine on the bottom strips, the top bearing shall be symmetrically aligned in the testing machine. Load shall be applied at the rate indicated in 1.1 until either the formation of a 0.25 mm wide crack or ultimate strength load, as may be specified, has been reached. If both the 0.25 mm crack and ultimate load are required, the specified rate of loading need not be maintained after the load at 0.25 mm crack has been determined.
- 1.1.3.3 The 0.25 mm crack load is the maximum load applied to the pipe before a crack having a width of 0.25 mm measured at close intervals, occurs throughout a length of 300 mm or more. The crack shall be considered 0.25 mm in width when the point of the measuring gauge penetrates 1.5 mm at close intervals throughout the specified distance of 300 mm. The ultimate load will be reached when the pipe will sustain no greater load.
- 1.1.3.4 **Calculation:** The crushing strength in Newton per linear metre of pipe shall be calculated by dividing the total load on the specimen by the nominal laying length.
- NOTE: - In most machines the total load will include the dead weight of the top bearing plus the load applied by the loading apparatus.

2. HYDROSTATIC TEST:

2.1 **Test Specimen:** The specimens for determination of leakage under internal hydrostatic pressure shall be sound surface dry and full-size pipe.

2.2 Procedure:

2.2.1 The pipe shall be supported in such a way so that the longitudinal axis is approximately horizontal and the exterior surface excepting the supports can be examined readily.

2.2.2 The equipment for making the test shall be such that the specimen under test can be filled with water to the exclusion of air and subjected to the required hydrostatic pressure. Apply hydrostatic pressure to the whole pipe including the portion of socket and rebated joints that is subjected to pressure in the "as laid" condition.

2.2.3 The specimen shall be filled with water and the air expelled. Pressure shall be applied gradually the inside of the pipe until the specified test pressure is reached. The test pressure shall be maintained for 2.5 seconds per millimeter thickness of the pipe.

2.2.4 The specimen under test shall show no signs of leakage either in the barrel or socket. Moisture appearing on the surface of the specimen in the form of patches shall not be considered as leakage. If during the test, beads of water appear on the specimen for an additional period equal to the initial period required for the test and the specimen shall be accepted if the beads do not grow on run.

2.3 The NP3 and NP4 class R.C.C. Pipes shall be capable of withstanding a test pressure of 0.7 Kg/Sq.cm. (7.0 m head)

3. DIMENSIONS:

3.1 Pipes :- The internal diameter, wall thickness and length of barrel and collar of pipes, the minimum reinforcements and strength test requirements for the six classes of pipe shall be as specified in Table-2. For collar jointed pipes, effective length shall be 2 mt or 2.50 mt. up to 250 mm nominal diameter pipes and 2.5, 3.0, 3.5 or 4.0 mt. for pipes above 250 mm nominal diameter.

3.2 **Tolerances:** - The following tolerances shall be permitted:

Dimensions		Tolerances
(A) Overall length	:	+/- 1 percent of standard length.
(B) Internal diameter of pipes or socket		
1) Up to and including 300 mm	:	+/-3 mm
2) Over 300 mm and up to and including 600 mm.	:	+/- 5
3) Over 600 mm and up to and	:	+/- 7 mm including 1200 mm.
4) Over 1200 mm	:	+/- 10 mm
(C) Barrel wall thickness		
1) Up to and including 30 mm	:	+ 2 mm - 1 mm
2) Over 30 mm and up to and including 50 mm.	:	- 1.5 mm + 3 mm
3) Over 50 mm and up to and including 65 mm.	:	+ 4 mm - 2.5 mm
4) Over 65 mm and up to and including 80 mm.	:	+ 6 mm - 3 mm
5) Over 80 mm and up to and	:	+ 6 mm

including 95 mm.		- 3 mm
6) Over 95 mm	:	+ 7 mm - 3.m mm

(4) SAMPLING AND INSPECTION:

- (A) LOT : In any consignment, all the pipes of same class, same size and belonging to the same mix of concrete shall be grouped together to constitute a lot for ascertaining the conformity of material to the requirements of this specification, samples shall be tested for each lot separately.

The No. of pipes to be selected from the lot shall depend on size of the lot and shall be according to the table below.

SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

No. of pipes in lot	FOR REQUIREMENTS UNDER 3 & 4		SAMPLE SIZE FOR TEST EXCLUDING ULTIMATE LOAD TEST
	Sample size	Permissible Number of defectives	
Up to 50	8	0	2
51 to 100	13	1	3
101 to 300	20	2	5
301 to 500	32	3	7
500 and above	50	5	10

(B) NUMBER OF TESTS AND CRITERIA FOR CONFORMITY:

- (i) All the pipes selected according to above table shall be inspected for dimensional requirements, finish and deviation from straight. A pipe failing to satisfy one or more of these requirements shall be considered as defective.
- (vii) The lot shall be declared as conforming to these requirements if the number of defectives found in the sample does not exceed the number of defectives given in Col.3
- (iii) The lot having found satisfactory shall be further subjected to the tests except ultimate load test for this purpose, the number of pipes given in Col.4 of above table shall be selected from the lot.

(5) MARKING:

The following information be clearly marked on each pipe.

- (a) Class of pipe.
(b) Date of manufacture and
(c) Name of manufacturer or his registered trade mark or both.
(d) Dia of pipe.

The above information shall be clearly marked on outside only for pipes up to 350 mm and including 350 mm internal diameter and both outside and inside for pipes above 350 mm internal diameter.

Design and strength test requirements of concrete pipes of class NP3.

Reinforced concrete - Medium duty Non-pressure pipes.

Nominal Internal Diameter of pipes	Barrel wall thickness	Reinforcement			Strength test requirements for three edge bear test	
		Longitudinal mild steel or hard drawn steel		Spiral hard drawn Kg./ Linear meter	Load to produce 0.25 mm crack	Ultimate load Kn/Linear
		Minimum	Kg/Linear meter			

					Kn/Linear	meters
1.	2.	3.	4.	5.	6.	7.
80	25	6	0.59	0.16	13.00	19.50
100	25	6	0.59	0.22	13.00	19.50
150	25	6	0.59	0.46	13.70	20.55
200	30	6	0.59	0.81	14.50	21.75
225	30	6	0.59	1.03	14.80	22.20
250	30	6	0.59	1.25	15.00	22.50
300	40	8	0.78	1.80	15.50	23.50
350	75	8	0.78	2.95	16.77	25.16
400	75	8	0.78	3.30	19.16	28.44
450	75	8	0.78	3.79	21.56	32.34
500	75	8	0.78	4.82	23.95	35.93
600	85	8 to 6 + 6	1.18	7.01	28.74	43.11
700	85	8 to 6 + 6	1.18	10.27	33.53	50.30
800	95	8 to 6 + 6	2.66	13.04	38.35	53.48
900	100	6 + 6	2.66	18.30	43.11	64.67
1000	115	6 + 6	2.66	21.52	47.90	71.85
1100	115	6 + 6	2.66	27.99	52.69	79.00
1200	120	8 + 8	3.55	33.57	59.48	86.22
1400	135	8 + 8	3.55	46.21	67.06	100.60
1600	140	8 + 8	3.55	65.40	46.64	114.96
1800	150	12 + 12	9.36	87.10	86.22	129.33
2000	170	12 + 12	9.36	97.90	95.80	143.70
2200	185	12 + 12	9.36	113.30	105.38	158.07
900.00	200	12 + 12	14.88	146.61	114.96	172.44
2600	215	12 + 12	14.88	175.76	124.54	186.31

NOTE : 1 : The actual internal diameter is to be declared by the manufacturer and the tolerance is to be applied on the declared diameter.

NOTE : 2 : The longitudinal reinforcement given in this table is valid for pipes up to 2.5 mt effective length for internal diameter of pipe up to 250 mm and upto 3 mt. effective length for higher diameter pipes.

NOTE :3 : Concrete for pipes above 1800 mm nominal diameter shall have a minimum compressive strength of 35 N/Sq.mm. at 28 days.

NOTE : 4 : If mild steel is used for spiral reinforcement, the weight specified in col.5 shall be measured to 140/125.

NOTE : 5 : Total mass of longitudinal reinforcement shall be calculated by multiplying the value given in Col. By the length of pipe and then deducting for the cover length provided at the two ends.

Design and strength test requirements of concrete pipes of class NP4.

Reinforced concrete - Heavy duty Non-pressure pipes.

Nominal Internal Diameter of pipes	Barrel wall thickness	Reinforcement			Strength test requirements for three edge bear test	
		Longitudinal mild steel or hard drawn steel		Spiral hard drawn Kg./ Linear meter	Load to produce 0.25 mm crack KN/Linear	Ultimate load KN/Linear meters
		Minimum	Kg/Linear meter			
1.	2.	3.	4.	5.	6.	7.
80	25	6	0.59	0.24	22.10	33.15
100	25	6	0.59	0.36	22.1	33.15
150	25	6	0.59	0.71	23.3	34.95
200	30	6	0.59	1.30	24.6	36.9
225	30	6	0.59	1.64	25.2	37.0
250	30	6	0.59	1.98	25.5	38.25
300	40	8	0.78	2.71	26.4	39.6
350	75	8	0.78	3.14	29.8	44.7
400	75	8	0.78	3.52	33.9	50.9
450	75	8	0.78	3.88	36.9	55.3
500	75	8	0.78	5.96	40.0	61.2
600	85	8 to 6 + 6	2.34	9.63	46.3	69.4
700	85	8 to 6 + 6	3.44	14.33	52.2	78.3
800	95	8 to 6 + 6	3.44	21.20	59.3	89.1
900	100	6 + 6	3.44	27.13	66.3	99.4
1000	115	8 + 8	6.04	35.48	72.6	108.9
1100	115	8 + 8	6.04	43.76	80.4	120.6
1200	120	8 + 8	6.04	53.07	88.3	132.4
1400	135	8 + 8	9.36	77.62	104.2	156.4
1600	140	12 + 12	9.36	108.97	119.3	179.5
1800	150	12 + 12	14.88	150.22	135.3	203.0
2000	170	12 + 12	14.88	151.79	135.3	203.0
2200	185	12 + 12	14.88	160.90	142.2	213.3
900.00	200	12 + 12	14.88	216.96	155.0	232.5
2600	215	12 + 12	14.88	258.93	156.7	250.0

NOTE : 1 : The actual internal diameter is to be declared by the manufacturer and the tolerance is to be applied on the declared diameter.

NOTE : 2 : The longitudinal reinforcement given in this table is valid for pipes up to 2.5 mt effective length for internal diameter of pipe up to 250 mm and upto 3 mt. Effective length for higher diameter pipes.

NOTE :3 : Concrete for pipes above 1800 mm nominal diameter shall have a minimum compressive strength of 35 N/Sq.mm. At 28 days.

NOTE : 4 : If mild steel is used for spiral reinforcement, the weight specified in col.5 shall be measured to 140/125.

NOTE : 5 : Total mass of longitudinal reinforcement shall be calculated by multiplying the value given in Col. By the length of pipe and then deducting for the cover length provided at the two ends.

DESIGN REQUIREMENTS OF REINFORCED CONCRETE COLLARS FOR PIPES OF NP3 AND NP4 CLASS

Nominal Internal Diameter of pipes	COLLAR DIMENSIONS			REINFORCEMENTS		
	Minimum caulking space	Minimum thickness	Minimum Length	Longitudinal or hard drawn Minimum Nos.	Mild steel weight Kg/ collar	Spiral hard drawn steel Kg/ Collar
1.	2.	3.	4.	5.	6.	7
80	13	25	150	8	0.08	0.07
100	13	25	150	8	0.08	0.08
150	13	25	150	8	0.08	0.10
200	13	25	150	8	0.08	0.12
225	13	25	150	8	0.08	0.14
250	13	25	150	8	0.08	0.16
300	16	30	150	8	0.11	0.22
350	19	35	200	8	0.15	0.40
400	19	35	200	8	0.15	0.59
450	19	35	200	8	0.15	0.60
500	19	40	200	8	0.15	0.70
600	19	40	200	8	0.23	1.05
700	19	15	200	8	0.23	1.08
800	19	50	200	8	0.23	2.05
900	19	55	200	8	0.33	2.25
1000	19	60	200	8	0.33	3.09
1100	19	65	200	8	0.33	4.11
1400	19	80	200	12 or 8.8	0.67	6.55
1600	19	90	200	12 or 8.8	0.67	9.00
1800	19	100	200	12+12	1.00	12.15
2000	19	110	200	12+12	1.00	13.30

NOTE : 1 : Collars for sizes 2200 mm and above shall be made out of mild steel plate of 6 mm thickness, steel conforming to IS:226-1975 with outside painted.

NOTE : 2 : If mild steel is used for spiral reinforcement, the weight specified in Co.7 shall be increased by factor 140/125.

NOTE : 3 : Soft grade mild steel wire for spirals may be used for collars of pipes of internal diameter up to 150 mm only by increasing weight by a factor 140/84.

**DESIGN AND STRENGTH TEST REQUIREMENTS OF PIPES OF CLASS NP2 REINFORCED
CONCRETE LIGHT-DUTY, NON-PRESSURE PIPES.**

Internal Diameter of pipe	Barrel Dimension		Collar Dimension			Longitudinal mild steel at permissible stress of 1.265 Kg/Sq.Cm	Spiral		Strength test requirement			
	Length	Minimum thickness	Minimum caulking	Minimum thickness	Minimum length		A Hard drawn steel wire at permissible stress of 1400 Kg/Sq.cm	Soft grade mild steel wire at permissible stress of 840 Kg/Sq.cm	Load to produce crack	ultimate load	Load to produce 0.25 mm crack (Sand bearing test)	Ultimate load
1	2	3	4	5	6	7	8	9	10	11	12	13
mm	mm	mm	mm	mm	mm	Kg/ Liner m	Kg/ Liner m	Kg/ Liner m	Kg/ Liner m	Kg/ Liner m	Kg/ Liner m	Kg/ Liner m
80	2.0	25	13	25	150	0.863	0.083	0.138	1.040	1.560	1.560	2.340
100	2.0	25	13	25	150	0.863	0.166	0.277	1.040	1.560	1.560	2.340
150	2.0	25	13	25	150	0.863	0.219	0.365	1.040	1.560	1.560	2.340
200	2.0	25	13	25	150	0.863	0.710	-	1.040	1.710	1.560	2.565
225	2.0	25	13	25	150	0.863	0.710	-	1.040	1.710	1.560	2.565
250	2.0	25	13	25	150	0.863	0.710	-	1.040	1.710	1.560	2.565
300	2.0 or 2.5 or 3.0	30	16	30	150	1.00	1.295	-	1.200	1.800	1.800	2.700
350	2.0 or 2.5 or 3.0	32	16	32	150	1.00	1.750	-	1.200	1.800	1.800	2.700
400	2.0 or 2.5 or 3.0	32	16	32	150	1.00	2.250	-	1.360	1.040	2.040	3.060
450	2.0 or 2.5 or 3.0	35	19	35	200	1.00	2.750	-	1.480	2.220	2.220	3.330
500	2.5 or 3.0	35	19	35	200	1.25	3.220	-	1.660	2.490	2.490	3.735
600	2.5 or 3.0	40	19	40	200	1.25	4.90	-	1.900	2.850	2.850	4.275
700	2.5 or 3.0	40	19	40	200	1.78	6.05	-	2.100	3.150	3.150	4.725
800	2.5 or 3.0	45	19	45	200	1.78	9.10	-	2.300	3.450	3.450	5.170
900	2.5 or 3.0	50	19	50	200	1.78	11.35	-	2.500	3.750	3.750	4.625

100 0	2.5 or 3.0	55	19	55	200	2.50	13.50	-	2.65 0	4.020	4.020	6.03 0
120 0	2.5 or 3.0	65	19	65	200	2.50	18.20	-	2.88 0	4.320	7.320	6.48 0
140 0	2.5 or 3.0	75	19	75	200	3.36	22.60	-	2.98 0	4.470	4.70	6.70 5
160 0	2.5 or 3.0	80	19	80	200	3.36	28.30	-	2.98 0	4.470	4.470	6.70 5
180 0	2.5 or 3.0	92	19	90	200	3.36	36.00	-	2.98 0	4.470	4.470	6.70 5

NOTE :- If steel wires are used as longitudinal reinforcement, the weight specified in Column 7 shall be modified by a factor 1 265/1 400.

NOTE :- If mild steel is used for spiral reinforcement, the weight specified under Column 8 shall be increased to 1 400/1 265.

NOTE :- Use of soft grade mild steel wire for spiral reinforcement is not recommended for pipes of internal diameter larger than 150 mm.

TERMS AND CONDITIONS OF CONTRACT FOR SUPPLYING NP3 AND NP4 CLASS SPIGOT SOCKET FLUSH TYPE RUBBER RING JOINTS R.C.C. PIPES AND SPECIALS

1. The pipes and special mentioned in Schedule 'B' attached herewith shall be delivered on site as shown by the Executive Engineer, Drainage Department or stacked in the Company's premises till required by the Executive Engineer, Drainage Department.
2. The rates per meter for the supply of pipes of different categories shall include the cost of necessary collars requires to be supplied along with each pipe length and specials. The collars shall be machine moulded. Hand moulded collars shall not be accepted.
3. The company will have to make their own arrangement for procuring steel and wire etc. required for the said works. The company shall neither claim any rise in rates due to any causes whatever for the supply of pipes and specials mentioned in schedule under Para (1) Nor shall the Municipal Corporation claim and reduction in rates for the same due to any causes whatsoever.
4. The pipes etc. shall manufactured to the I.S. specification 458- 1988 with the latest amendments of 1991.
5. At production of each lot of pipe of each size, the Contractor shall send the letter of offer for testing of pipes of Executive Engineer, Drainage Department. The authorized representative of Executive Engineer, Drainage Department shall test the pipes as per I.S. 3597-1998 & I.S. 458-1988 with latest amendments.
6. The Contractor shall use the reinforcement as specified in I.S. 458-1988 with latest amendment. 2% of the pipes may be broken to ascertain the weight of steel and if not found in accordance with I.S. Specification the whole lot shall be rejected or the payment shall be made at the reduced rate as settled by the Commissioner, S.M.C. The cost on the pipe broken for inspection shall be born by the Contractor in any case.

7. The successful tenderer shall deposit a sum equal to 2% of the tendered amount with the Surat Municipal Corporation for due fulfillment of various terms and conditions of contract and the same shall be returned to the company on presentation of certificate from the Executive Engineer, Drainage Department that the terms and conditions of the contract has been fulfilled.
8. If the company do not abide by any of the terms of the agreement, the Municipal Corporation will have the right to cancel the contract by giving 15 days notice and the amount of 2% of Security Deposit shall be forfeited to the Municipal Corporation for the breach of the contract. The company shall further be liable to pay extra cost that right be incurred by the Municipal Corporation for the purchase of pipe and specials from any other source.
9. The Municipal Corporation is at liberty to curtail the quantity of pipes of each category as per the requirements.
10. The pipes shall have to be supplied within the time as shown in Memorandum (Failing which the Municipal Corporation shall be at liberty to penalty clause. The time limit shown in memorandum status from the date of placing order.

TABLE-14: SPIGOT AND SOCKET DIMENSIONS OF NP2 AND NP3 CLASS PIPES (RUBBER RING ON JOINT) FROM 80 TO 900 MM DIAMETER

Pip e dia .	Ru bb er rin g ch art di a.	Ru bb er rin g int. dia .	T	RS	DS	D S 1	D S2	D S 3	R	LS D	K	N	LT	HT	LS P	P	S	H	X	W	RI
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
80	11	102	25	32.5	70	8	28	34	3	5.5	6.5	95	84	34	50	7	5.5	19.5	1	1	5.5
100	11	120	25	32.5	70	8	28	34	3	5.5	6.5	95	84	34	50	7	5.5	19.5	1	1	5.5
150	11	170	25	32.5	70	8	28	34	3	5.5	6.5	95	84	34	50	7	5.5	19.5	1	1	5.5
200	11	230	30	38	83	11	38	34	5	6.5	6.5	113	97	39.5	50	7	5.5	24.5	1	1	5.5
225	11	255	30	38	83	11	38	34	5	6.5	6.5	113	97	39.5	50	7	5.5	24.5	1	1	5.5
250	11	275	30	38	83	11	38	34	5	6.5	6.5	113	97	39.5	50	7	5.5	24.5	1	1	5.5
300	12	340	40	51	90	12	42	36	6	7	7	130	130	53	55	7.5	6	34	1	1	6
350	16	435	75	75	120	16	56	48	8	10	10	158	135	78	72	10	8	67	2	2	8
400	16	480	75	75	120	16	56	48	8	10	10	158	135	78	72	10	8	67	2	2	8
450	16	575	75	75	120	16	56	48	8	10	10	158	135	78	72	10	8	67	2	2	8
500	16	570	75	75	120	16	56	48	8	10	10	158	135	78	72	10	8	67	2	2	8
600	20	625	85	85	150	20	70	60	10	12	12	193	153	88.5	90	12	10	75	2	2	10
700	20	765	85	85	150	20	70	60	10	12	12	193	153	88.5	90	12	10	75	2	2	10
800	20	875	95	95	150	20	70	60	10	12	12	197	171	98.5	90	12	10	85	2	2	10
900	20	970	100	100	150	20	70	60	10	12	12	200	180	103.5	90	12	10	90	2	2	10
900	20	970	100	100	150	20	70	60	10	12	12	200	180	103.5	90	12	10	90	2	2	10

ALL DIMENSIONS IN MILLIMETERS

NOTE:-

1. Corners to be rounded off.
2. The dimensions DS2, DS3, LSP, IS, T, H, S, HT and K shall conform to the values given in this table as these are critical dimensions. Other dimensions are for guidance only. The following tolerance shall supply on the critical dimensions.

Dimensions

Tolerances

T and GT same as that of barrel wall thickness given in 8.2
TS and H half the tolerance on barrel wall thickness given in 8.2
DS2, DS3, The tolerance, in mm shall be as given below:
K & S

Chard Diameter	DS2	DS3	LSP	K	S
10	12	+/-3	+/-4	+/-1.25	+/-0.75
12	12	+/-3	+/-4	+/-1.25	+/-0.75
16	12.5	+/-3	+/-4	+/-2.00	+/-1.25
20	13	+/-3	+/-4	+/-2.25	+/-1.55

TABLE-17: SPIGOT AND SOCKET DIMENSIONS OF NP3 / NP4 CLASS PIPES FROM 1000 TO 2600 MM DIAMETER

(RUBBER RING CONFINED JOINT)
ALL DIMENSIONS IN MILLIMETRES

Pipe Diameter	Rubber ring chart diameter	Rubber ring internal diameter	T	TS	LS	LSI	K	LSP	a	b	j	H	i	l	iD
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1100	20	920	115	58.0	114	20	13	114	25	28	39	42	4	9	1100
1100	20	1009	115	58.0	114	20	13	114	25	28	39	42	4	9	1202
1200	20	1095	120	60.5	114	20	13	114	25	28	39	44.5	4	9	1307
1400	25	1275	135	67.5	114	20	16	114	25	35	42.5	50	4	10	1520
1600	25	1445	140	72.5	114	25	16	114	25	35	42.5	50	4	10	1720
1800	25	1620	150	77.5	114	25	16	114	25	35	42.5	55	4	10	1930
2000	25	1810	170	87.5	114	25	16	114	25	35	42.5	65	4	10	2150
2200	25	1995	185	95.0	114	25	16	114	25	35	42.5	72.5	4	10	2365
900.00	25	2180	200	102.5	114	25	16	114	25	35	42.5	87.5	4	10	2580
2600	25	2360	215	110.0	114	25	16	114	25	35	42.5	87.5	4	10	2995

NOTES:

1. Corners to be rounded off.
2. The dimensions LS, LSP, TS, T, H, L, b and K shall conform to the values given in this table as these are critical dimensions. Outer dimensions are for guidance only. The following tolerance shall apply on the critical dimensions.

Dimensions Tolerances

LS and LSP	+7 mm
T	Same as that of barrel wall thickness given in 8.2
H and TS	Half the tolerance on barrel wall thickness given in 8.2
L	+0.5 MM
b	+1 mm for 28 mm and +1.5 mm for 35 mm
K	+1.75 mm for 20 mm rubber ring chord dimensions +2.5 mm for 25 mm rubber ring chord dimensions

TABLE-20 WEIGHT OF SPIRALS (HARD DRAWN STEEL) IN SOCKET OF R/R JOINT
R.C.C. PIPES OF DIFFERENT CLASSES (Kg./Number)

Internal diameters of pipes	NP2 Class	NP3 Class	NP4 Class	P1 Class	P2 Class	P3 Class
1	2	3	4	5	6	7
80	0.08	0.08	0.08	0.08	0.08	0.08
100	0.09	0.09	0.09	0.09	0.09	0.09
150	0.12	0.12	0.12	0.12	0.12	0.15

200	0.14	0.14	0.21	0.14	0.21	0.35
225	0.15	0.15	0.26	0.15	0.26	0.43
250	0.16	0.16	0.31	0.16	0.31	0.51
300	0.45	0.45	0.53	0.45	0.53	0.84
350	0.51	0.64	0.64	0.51	0.74	1.24
400	0.56	0.41	0.41	0.56	0.99	1.66
450	0.63	0.76	0.76	0.63	1.23	2.26
500	0.68	0.87	1.08	0.68	1.57	2.85
600	0.81	1.00	2.12	1.52	2.88	4.74
700	0.92	2.16	3.02	1.79	3.96	6.79
800	1.14	2.87	4.67	2.04	6.28	9.99
900	1.50	4.06	6.03	2.63	8.29	--
1000	1.91	--	--	3.33	1.29	--
1100	2.34	--	--	3.33	1.29	--
1200	2.84	--	--	4.90	--	--
1400	3.82	--	--	--	--	--
1600	5.64	--	--	--	--	--
1800	7.25	--	--	--	--	--
2000	11.78	--	--	--	--	--
2200	12.88	--	--	--	--	--

NOTES:

1. Longitudinal reinforcement shall be proportional to be the length of socket cage as given in Tables 2 to 11.
2. If mild steel is used for spiral reinforcement, the weight specified above shall be increased to 140/125.

Executive Engineer
New East (Sarhana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

SPECIFICATION FOR RUBBER RINGS FOR SEWERS: INDIAN STANDARD: 5382-1985

1. SCOPE:

- 1.1 This standard prescribes the requirements for materials used for vulcanized solid rubber sealing rings for water supply and drainage system, drain pipes, sewers and rainwater pipes, all at ambient temperature including gas connections. It covers joint rings for all pipe line materials including iron, steel, stoneware, asbestos cement concrete, pitch fiber, plastics and glass reinforced plastics.

2. TYPES:

- 2.1 This standard covers six types of pipe joint rings, namely, 1 to 6. These correspond to the respective nominal hardness of 40, 50, 60, 70, 80 and 88 IRHD.
- 2.2 Sealing rings having two different types of rubber are permitted.

3. REQUIREMENTS.

- 3.1 Material: The rubber shall be free from extractable substances which impart taste, odour or toxicity of water.
- 3.2 The rings shall be homogeneous, free from porosity, grit, excessive blooms, blisters or other visible surface imperfections.
- 3.3 Stretch Test: Stretch gaskets till the circumference is increased by 50 percent, then visually inspect for the following.
 - 3.3.1 Gaskets shall be made of a properly vulcanized virgin rubber compound containing no scrap or reclaim.
 - 3.3.2 The surface of the gasket shall be smooth free from pitting cracks, blisters, air marks, and any other imperfection that may affect its behavior in service. The body of the gasket shall be free from porosity and air pockets.
- 3.4 Unless otherwise specified, the materials shall be black.
- 3.5 Dimensions and Tolerances - All the dimensions and tolerances shall be as agreed to between the purchaser and the manufacturer/supplier.
- 3.6 Physical Requirements:
 - 3.6.1 Hardness: Hardness when determined in accordance with Micro test method described in IS: 3400 (Part-I)-1980 (Methods of test for vulcanized rubber: Part-2 Hardness.). Hardness when determined in accordance with micro test method described in IS-3400 (Part-II) 1980 shall comply with the requirements given in Table-1. If the Dimensions of the ring are appropriate than 'Normal Test Method' specified in IS3400 (Part-II) 1980 may be used provided that the 'Micro Test Method' is used for reference purpose.
 - 3.6.2 Tensile Strength and Elongation at Break: Determined by the method described in IS:3400 (Part-1)-1977 [Methods of test for vulcanized rubber : Part-1 Tensile stress-strain properties (first revision)].
 - 3.6.3 Compression Set: Determined by the method described in IS: 3400 (Part-10)-1977. [Methods of test for vulcanized rubber: Part-10 Compression set at constant strain (first revision)]
 - 3.6.4 Accelerated Ageing in Air: By the oven method described in IS-3400 (Part-4)-1983, the changes in hardness, tensile strength and elongation at break after ageing shall comply.
 - 3.6.5 Water Immersion: Determined according to the method given in IS-3400(Part-6)-1983 after 7 days immersion in neutral water pH 7 at 70°C.

- 3.6.6 Cold Resistance: When cooled in a chamber described in Appendix-B (IS-5382-1985), the increase in hardness, measured after 7 days at - 10°C, from the initial hardness, shall comply with the requirements given in as per IS.
- 3.6.7 Water Absorption: Sealing rings shall not absorb more than 10 percent (m/m) of water when tested according to the method prescribed in relevant IS.
4. MARKING:
 - 4.1 Each sealing ring or packing or both shall be marked indelibly with:
 - (a) The manufacturer's name or trade-mark, if any;
 - (b) The month and year of manufacture; and
 - (c) The type following by a word, such as 'Gas' or 'Water' or 'Sewers' depending on the application for which they are intended.
 - 4.1.1 Each sealing ring or packing or both may also be marked with the Standard Mark.

Note: The use of the standard mark is governed by the provisions of the Bureau of Indian Standards Act 1986 and the Rules and regulations made there under. The Standard Mark on products covered by an Indian Standard conveys the assurance that they have been produced to comply with the requirements of that standard under a well-defined system of inspection, testing, and quality control which is devised and supervised by BIS and operated by BIS for conformity to that standard as a further safeguard. Details of conditions under which a license for the use of the Standard Mark may be obtained from the Bureau of Indian Standards.
5. PACKING:
 - 5.1 The material shall be packed as agreed to between the purchaser and the supplier so as to protect them from undue exposure to light and heat and mechanical damages during transit and storage.
6. SAMPLING:
 - 6.1 Scale of Sampling and Criteria for Conformity: For the purpose of ascertaining conformity to this standard the scale of sampling and criteria for conformity shall be as prescribed as per relevant I.S.
7. TIME LAPSE BETWEEN RECEIPT OF MATERIAL AND TESTING:
 - 7.1 For all the test purposes, the minimum time between vulcanization and testing shall be 16 h.
 - 7.1.1 For product tests, whenever possible, the time between vulcanization and testing should not exceed 4 months. In other cases, tests shall be made within 2 months from the date of receipt of the product by the customer.
8. TEST PIECE:
 - 8.1 Wherever possible, for all tests, test pieces shall be cut from the finished article. Where this is not possible, the manufacturer shall provide test slabs from the same batch of rubber and vulcanized to the same degree and in the same manner as that of the rubber from which the sealing rings have been manufactured.
 - 8.1.1 Wherever it is not possible to cut standard test piece from the rings, for determination of tensile strength and elongation at break, test piece as shown in drawing shall be used with the rate of traverse of moving grip as 15 cm/min.

APPENDIX-C

(Clause 3.7.8)

WATER ABSORPTION

C.1 PROCEDURE:

- C.1.1 From the finished ring cut a piece of about 3 g. Weight it accurately. Put in 150 ml of distilled water. Boil under reflux with air condenser for 168 hours. Remove the piece and weigh again after surface water layer is dried up.
- C.2 CALCULATION:
- C.2.1 Calculate the water absorption as follows:

$$\text{Water absorption, percent by mass} = \frac{M2 - M1}{M1} \times 100$$

Where

M1=original mass in g of the test piece before immersion in water and

M2 = mass in g of the test piece after immersion in water.

For prescribed limit see-3.6.7

APPENDIX-D

(Clause 6.1)

SAMPLING AND CRITERIA FOR CONFORMITY:

D.1 SCALE OF SAMPLING:

- D.1.1 Lot - In a consignment all the sealing rings of the same type, dimensions, design and manufactured from the same type of rubber under essentially similar conditions of production shall be grouped together to constitute a lot.
- D.1.2 Samples shall be selected and tested from each lot separately for ascertaining its conformity or otherwise to the requirements of this specification.
- D.1.3 The number of sealing rings to be selected at random from a lot for different tests shall depend upon the size of the lot and shall be in accordance with col 1 and 2 of Table-3

TABLE-3 SCALE OF SAMPLING AND PERMISSIBLE NUMBER OF DEFECTIVES

No. of sealing rings in the lots	For dimensions and finishing defects (see 3.2 and 3.3)		No. of tests for each characteristic for hardness, tensile strength, elongation compression test set, water absorption and stretch tests	No. of tests for each characteristic for ageing and water immersion test (Table:1 & 2)
	Sample size	Permissible No. of defective		
Upto 100	5	0		
101- 150	8	0	3	1
151 - 300	13	0		
300 - 500	20	0		
501 - 1000	32	1	5	2
1001 and above	50	3	8	3

- D.1.3.1 The rings to be selected from the lot shall be chosen at random. In order to ensure the randomness of selection, random number tables shall be followed. In case random number tables are not available, the rings may be selected from the lot in the following manner:

Starting from any ring in the lot, the rings shall be counted as 1.2.....r and so on in one order, where r is the integral part of N/n (N and n being the lot size and sample size respectively). Every ring thus counted shall be withdrawn to constitute the sample.

D.1.3.2 If the rings are packed in bundles, at least 10 percent of the bundles shall be opened and the required number of rings shall be selected by taking approximately equal number of rings at random from each of the bundle.

D.2 NUMBER OF TEST AND CRITERIA AND CONFORMITY:

D.2.1 All the sealing rings selected according to D.1.3 shall be examined for dimensions and finishing defects. Any ring failing in one or more of these characteristics shall be considered as defective. If the number of defectives found in the sample is less than or equal to the corresponding permissible number given in col-3 of Table-3, the lot shall be declared as conforming to these requirements, otherwise not.

D.2.1.1 In the case of those lots when have been found unsatisfactory according to D.2.1 all the sealing ring may depending upon the agreement between the purchaser and the supplier, be inspected for these characteristics and the defective ones removed.

D.2.2 The lot having been found satisfactory for workmanship and dimensions according to D.2.1 shall then be examined for hardness, tensile strength, elongation strength, swelling, water absorption and compression characteristics. The number of tests to be conducted for such of these characteristics is given in col-4 of Table-3. For this purchase, required number of rings shall be selected at random from those already selected under D.1.3 and if necessary, from the lot. For each of the characteristics the various tests shall be conducted on independent test pieces. The lot shall be declared as satisfactory if the medium value of the test results of compression characteristic satisfies the relevant requirements and for the remaining characteristics none of test fails.

D.2.3 The lot which has been found satisfactory according to D.2.2 shall then be subjected to relevant ageing and oil immersion tests. The number of independent tests to be conducted for each of the characteristics is given in col-5 of Table-3. For this purpose, required number of rings shall be selected from those which have been tested and found satisfactory under D-2.2. The lot shall be declared satisfactory with respect to ageing characteristic if none of the test fails.

Executive Engineer
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Surat Municipal Corporation

Signature Of The Contractor.

15.0 ITEM WISE DETAILED TECHNICAL SPECIFICATION

ITEM NO.1:

Providing cutting of existing bituminous surface up to suitable depth in line and alignment using Mechanically operated cutter machine before excavating existing surface for utility laying including cost of all type of machinery, fuel, labour etc. and as per direction of engineer in charge.

ITEM NO.2:

Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with showing and strutting if required as per required gradient and line including safety provisions using site rails and staking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.

(A) Metalled road

Item includes breaking and removing of the road surface upto the bottom of the base course, rubble soling etc. Item also includes stacking of useful material upto the lead of 50 meters.

Mode of measurement and payment:-

Payment shall be made on square meter basis.

ITEM NO.3:

Excavation in bituminous road as per required gradient and line including safety provisions using site rails and staking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.

(B) Bituminous road

Detailed specification as per Item No.2.

ITEM NO.4:

Demolition/Dismantalling RCC work or masonry work or removing of paver block flooring in any part including stacking of serviceable/useful material and disposal of unserviceable material with all lead and lift.

ITEM NO.5:

Excavation for pipe line trenches for water supply, sewerage line, manhole etc. all with showing and strutting if required as per required gradient and line including safety provisions using site rails and staking excavated stuff including up to all required lead cleaning the site etc. complete for all lifts and strata as specified.

(A) In all sorts of soil and soft murrum

(A) Up to 1.5 Mt. depth from G.L.

(B) 1.5 Mt. to 3.00 Mt. depth

(C) 3.0 Mt. to 4.50 Mt. depth

(D) 4.5 Mt. to 6.00 Mt. depth

(E) 6.0 Mt. to 7.50 Mt. depth

(F) For every extra additional depth of 1.5 mt. or part there of beyond 7.5 mt. depth.

5.1 GENERAL:

4.1.1 Any soil which generally yields to the application of pickaxes and shovels or jumbars of scarifiers, phawaraa rakes or any such excavating implement or organic soil, gravel, silt, sand, true loam, clay, peat etc., fall under this category.

5.2.0 CLEARING OF SITES :

5.2.1 The site on which the drain is to be laid shall be cleared and all obstructions, like loose, materials and rubbish of all kind, bush, wood and trees shall be removed as directed. The

materials so obtained shall be the property of the Corporation and shall be conveyed and stacked as directed with 90 m. lead. The roots of the trees coming in the site shall be cut and coated with hot asphalt.

- 5.2.2 The rate of site clearance is deemed to be included in the rate of earth work for which no extra payment will be paid.

5.3.0 SETTING OUT:

- 5.3.1 All the centre line of drain trenches shall be given by the Engineer-in-charge and it will be the responsibility of the contractor to install substantial reference marks, bench marks etc. and maintain them as long as required true to line, level, curve & slopes. The contractor shall assume full responsibility for alignment, elevation and dimensions of each and all parts of the work. The labour, materials etc. required for setting out and establishing bench marks and other reference marks shall be arranged by the contractor at his own cost.

5.4.0 EXCAVATION:

- 5.4.1 The excavation for the drain trenches shall include removal of all materials of whatsoever nature and whether wet or dry, necessary for the laying of pipe lines/construction of box drain and sub-structure exactly in accordance with lines, levels, grades and curves shown on the plans L-sections. Trenches shall be excavated to the exact width at of lowest portion of the trench and the sides shall be left vertical as far as possible or according to the angle of repose of various soils. The contractor shall notify the Engineer before starting excavation to enable him to take cross sectional levels for purpose of measurements before the ground is disturbed.
- 5.4.2 Excavation shall be carried out in strata's specified in item of schedule 'B'. The lift will be also as specified in Schedule 'B'. Excavated material shall be stacked at a minimum distance of 1.5 meters away from the edge of the trench. The leveling Instruments shall be used for checking the gradients of bed or trenches. Before the trench excavation is started, sight rails made of good timber shall fix truly vertical at a uniform height, above the invert. The centre line shall be clearly marked on the sight rails. Depth of excavation shall be checked by leveling instruments only as per instructions of the Engineer-in-charge.
- 5.4.3 The bottom of the trenches shall be leveled both longitudinally and transversely or stepped as directed by the Engineer. The contractor shall, at his own cost, remove such portion of boulders or rock, as required to make the bottom of the trench level. No filling shall be allowed to being the bottom of the trench in level. If by contractor's mistake, Excavation is made deeper than shown on the plan ordered by the Engineer, the extra depth stuff duly watered and rammed as directed by the Engineer as at the cost of the contractor. All rock or other hard foundation shall be cleared off, all soft and loose material cut to a firm surface, either level, stepped as directed by the Engineer. The Engineer may order such changes in the dimensions and elevation of bottom of trenches and may be deemed necessary to secure satisfactory lying of pipe lines. The contractor shall at his own expense, make provision for all pumping, dredging bailing out of draining water and the trenches shall be kept free of water, during construction work.
- 5.4.4 Extra excavation to be done for collar/joint pits shall be paid separately by SMC at the rate of the respective item of excavation but in any case extra width for excavation of collar pits shall not exceeds 500 mm from outer face of collar/joint on both sides as well as 100 mm in bottom and 600 mm in length on the either side.
- 5.4.5 After each excavation is completed, the contractor shall notify the Engineer to that effect and no trench will be allowed to be filled up until the Engineer or his authorised agent approved the depths and dimensions of excavation and the nature of the strata met with and the level and/or measurements are recorded.

- 5.4.6 The work measured shall be maintained till completion and in case of collapse of sides or bottom of trenches due to any reasons, it shall be made good without any extra cost.

5.5.0 PROTECTION:

- 5.5.1 In case of excavation is to be done with sloping of stopping sides (i.e. to the given angle) as per the drawing details, then the rates for shoring and strutting shall be considered included in this item. Wherever required the shoring strutting may be done. It shall conform to specification of shoring and strutting which is explained in other item of this tender.
- 5.5.2 The drainage trenches shall be strongly fenced and red light signals shall be kept at night in charge of watchmen to prevent accidents. Sufficient care and protective measure shall be taken to see that the excavation shall not affect or damage the adjoining structure. The contractor shall be entirely responsible for any injury to life and damage to the properties etc. Necessary protection work such as guide ropes, crossing places, barricades, caution Boards etc. shall be provided by the Contractor. The wooden planks for crossing trenches by public as per requirement shall be provided by the contractor without any extra cost.

5.6.0 ADDITIONAL REQUIREMENTS :

- 5.6.1 At the joints drain the trench shall be excavated to an additional depth of 15 cms. and width of 30 cms. and length of 15 cms. beyond the edge of collar on both the sides or as directed by Engineer-in-charge. The rate includes for such extra excavation made at the joints. The trenches shall be excavated perfectly in straight line. The bottom of trench shall be kept as per invert level or as directed. In obtaining formation on the bottom trench, the usual method of leveling instruments shall adopted. The contractor shall have to provide and maintain leveling instruments without any extra cost.
- 5.6.2 If case of emergencies such as unexpected rains, important public occasions, dangers to properties etc. the contractor shall be required to fill up the excavation with necessary consolidation, which may be re-excavated for flow test and refilled for which no extra claim for payment and time limit shall be entertained.
- 5.6.3 If contractor fails or makes delay to give the flow test of the pipe line laid line any of the section, without any genuine reasons, he shall be responsible to get re-excavate any part of the length of trenches refill in such case (i.e. before testing for safety of pedestrian and / or vehicular traffic) as found necessary by the Engineer-in-charge without any extra cost, if found necessary and as directed by the Engineer-in-charge. The contractor shall have to excavate the refilled trenches, during flow test without any extra cost.
- 5.6.4 In case of excavation across a road, permission of road authorities shall have to be obtained. At all road crossings, trenches shall be excavated only for half width of the road and pipe shall be laid. The other half shall be excavated only after back filling over the laid pipe line making it suitable for the traffic. The contractor shall provided diversion when the pipe line is to be laid along the road as required and shall maintain the diversion or any part of it, of damaged without any extra cost. At all road crossings, the pipe shall be laid below the crust of the road.
- 5.6.5 The contractor shall break the road surface by Excavation of chiseling to the exact width and length as shown on the drawing. Separate provision should be made for cutting of road surface. However this item shall be paid separately as mentioned in Item No.1 or 2 whichever is applicable.
- 5.6.6 The excavated stuff shall be deposited in uniform layers to avoid mixing with other kind of materials at no objectionable place.

- 5.6.7 The contractor shall have to make his own arrangements for taking trial pits etc. at his own cost, as directed by the Engineer-in-charge.
- 5.6.8 If necessary, temporary arrangements shall have to be made to divert or convey across all natural water ways or build up drains etc. without any extra cost.
- 5.6.9 All water pipes, cables; any structure shall be protected by the contractor as directed by the Engineer-in-charge, if met during excavation. Any damage caused shall be rectified without any extra cost.
- 5.6.10 Breaking of brick structures/R.C.C. works, cement concrete etc. coming in excavation shall be considered as excavation in strata shown in the item, as above and will be paid at the same rate.
- 5.6.11 All safety precautions shall have to be made by the Contractor.
- 5.6.12 The excavation in narrow streets, lanes shall have to be carried out with full precautions so as that no property may be damaged. Any compensation to be paid to the other party will be paid by the contractor for which the Surat Municipal Corporation will not be responsible.
- 5.6.13 All obstacles, structures etc. shall be removed and made good without further claim or extra cost.

5.7.0 DISPOSAL OF EXCAVATED STUFF:

- 5.7.1 No excavated stuff from foundation trenches of what ever kind they shall be placed even temporarily nearer 1.5 meter distance prescribed by the Engineer from the outer edge of excavation. The rate of excavation includes sorting out of useful materials and stacking them separately as directed within specified lead. The material suitable and useful for backfilling or other use shall be stacked in convenient places but not in such a way as to obstruct free of movement of men, animals and vehicles or encroach upon the area required for constructional purpose. The site shall be kept clean of all debris on completion of the work.
- 5.7.2 Disposal of excavated materials is subject to the following. Useful materials obtained from cleaning site and excavation shall be stacked within a lead of 90m. Beyond the building area as directed. Materials suitable for back filling shall be stacked at convenient places within a lead of 90 m from the structure for reuse. Useful stones from excavation shall be stacked nearly within lead of 90 m. and will allowed to be used by the Contractor on payment at rates laid down in the contract or if not so laid down at scheduled rates of the corporation or at a mutually agreed rates if there are no such rates in the schedule of rates.

5.8.0 DEWATERING:

- 5.8.1 Any water which may accumulate in the excavation during the progress of the work, either, by percolation, seepage, springs, rain or any other cause shall be bailed out by pumping and diverting surface flow if any by earthen binds or by any other means. The bunds shall be removed as soon as the work is completed.
- 5.8.2 The Contractor shall provides, maintain and operate sufficient number pumping equipment of approved capacity to keep the AREA OF NORTH ZONE (KATARGAM), SURAT. construction free from water and any sub soil water arising during the construction period.
- 5.8.3 Pumping shall be so controlled to dispose of water from adequate drainage ditches and shall not be rated so as to make in convenience in constructional operations in general. Precaution shall be taken by the Contractor to prevent any damage to the trench, pipe line of adjustment structure.
- 5.8.4 The excavation shall be kept free from water by the contractor (1) During excavation (2) When pipe laying and construction of joints are in progress and till the Engineer-in-charge considers that the mortar is sufficiently set. (3) During hydraulic testing inspection and measurements.

5.8.5 The contractor shall be paid separately for dewatering exceeds 5 HP.Hr. as per rate mentioned in Schedule-B.

5.10.0 MEASUREMENT AND PAYMENT:

5.10.1 The payment of a various classes of excavation, depending upon the depth of excavation, shall be made at the unit rate per cubic meter for the quantity actually excavated and accepted by the Engineer limited to dimensions shown in the sanctioned plans L-Section or as directed by the Engineer. Excavation in excess of the sanctioned dimensions shall not be measured nor paid for and if so ordered by the Engineer. The contractor shall have to fill up the excess depth with selected excavated stuff duly watered and rammed as directed by the Engineer-in-charge without any extra payment to the Contractor.

5.10.2 Dimension shall be measured correct to two places of decimals of a meter and individual quantity shall be calculated to two places of decimals of a cubic meter.

5.10.3 The rate for the item of excavation shall include (Unless and otherwise mentioned).

- (a) Clearing of site.
- (b) Setting out work including all materials and labour.
- (c) Refilling the drain trenches with approved materials and watering & consolidating up to original ground level.
- (d) Providing facilities for inspection and measurements at any time by the concerned Corporation Officials.
- (e) Compensation for injury to life and damage to property if caused during progress of work.

5.10.4 All measurement shall be take true vertical depth from bottom of pipe (i.e. I.L. + thickness of pipe).

ITEM NO.6:

Providing, maintaining up to the required period safe guarding, and lightening the excavated trenches with proper barricading, fencing with timber ballies, bamboos, G.I. sheets, red flag and red lights along with the provision of the chawkidars as directed by the Engineer-in-charge.

FENCING, WATCHING, LIGHTING:

The tenderer shall at his own cost make all proper provision for protecting the work by fencing and red flags by watching and lighting at night, or otherwise as may be directed by the Engineer. The posts of the fencing shall be of timber, securely fixed in the ground, not more than 3.0 meter apart, they shall not be less that 3" in diameter and approximately 2.0 mt. above the surface of the ground. There shall be two rails of horizontal members. One near top of the posts & the other about 0.50 mt. above the ground and each shall be from 2" to 3" in diameter and sufficiently long running from post to post, to which they shall be bound with G.I.Sheets. The G.I. sheets shall be marked with painting of 'Danger' or 'Caution' notice, which should be clearly visible in nights indicating the work is under progress. Red flags shall be tied to the posts for the guidance of the vehicular traffic at all turning points and conspicuous intermediate points. The method of projecting rails beyond the posts and tying them together where they meet will not be allowed on any account. All along the edges of the excavated trenches a bank of about 1.0 mt. High shall be formed where required by the Engineer for further protection at free of cost. Proper provision shall be made for lighting at night and watchmen shall be kept to see that this is properly done. In the event of the tenderer not fully complying with the provisions of this clause, the Engineer, may with or without notice to the tenderer, put up fencing or improve the fencing already put up, or provide or improve the lighting, provide suitable number of red flags or adopt such other measures as he may deem necessary. All the cost of such measures as may be adopted by the Engineer shall be borne by the tenderer.

The fencing along the trenches with red flags shall be maintained, and lighted during night hours by the tenderer until the road surface has been reinstated to the satisfaction of the Engineer.

Arrangements shall be made by the tenderer to divert traffic whenever work in thorough fares is in progress. Entire work shall be carried out in such a manner that flow of traffic shall not be obstructed in any way. If any extra policemen required for the management of the traffic at the junction, the same shall be employed at the cost of the tenderer.

The trench shall be barricaded and warning boards shall be fixed as directed. Red lights shall be hanging at night time at closed intervals to indicate the danger and the chowkidar shall be employed to see that the lights are properly burning. The contractors shall be solely responsible for any accident due to any default in barricading, sign posting or red lights and shall bear the consequences.

Mode of measurement:-

The payment for this item will be made on per square meter basis for which the fencing/barricading has been provided and maintained including all the other safety measures stated/included as above.

ITEM NO.7:

Removing of existing pipeline incl. removal of specials, valves jointing material including carting and stacking of removed material for site of work to the department store as directed excl. excavation and refilling.

ITEM NO.8:

Supplying & Filling with fine sand in compacted thickness over the base including watering ramming, consolidating & dressing etc. complete. Item includes by using vibratory plates compacted machine and as directed by engineer in charge.

8.0 WORKMANSHIP :

- 8.1 The sand / granular material to be use for bedding shall be free from salts, organic or other foreign matter. All clods of sand shall be broken.
- 8.2 As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all derbies, bricks bats, mortar dropping etc. sand filled with sand in layers not exceeding 20cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The sand shall be rammed with iron rammers where feasible and with the butt ends of crowbars, where rammer cannot be used.
- 8.3 The final level of bedding shall be kept to shape intended to be given to excavation.
- 8.4 The consolidation may be done by hand rammers, where so specified. The extent of consolidation required shall also be as specified.
- 8.5 The sand/granular material shall be allowed to be used in bedding the trenches. Under no circumstances black cotton soil be used for filling the plinth.

8.0.1 MODE OF MEASUREMENTS & PAYMENT:

- 8.0.2 The payment shall be made for bedding the granular material as per drawings. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.
- 8.0.3 The rate shall be for a unit of one cubic meter.

ITEM NO. 9:

Providing and supplying ISI Standard R.C.C. pipes in standard lengths of following class and diameter suitable for rubber ring joints including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental stores, stacking etc. One rubber ring should be supplied with each full length socketed pipe, cost included in rates below. Lowering, laying and jointing R. C.C. pipes in C. M. 1:1 1/2 of following diameters in proper position, grade and alignment at all levels as directed by Engineer-in-charge including conveyance from stores to site of work, labour, giving hydraulic testing as per ISI code.

9.1.0 MATERIALS :

9.1.1 R.C.C. NP2 and NP3 spun pipes of various diameters and of required length with collars shall be brought by the contractor. The contractor shall have to cart the same to the site of work as per requirements. The pipes and collars shall conform to I.S. 458 (concrete pipes with or without reinforcement) 2003 latest version.

R.C.C. spun pipes or collars shall be designed such that the maximum tensile stress in circumferential steel due to the specified hydrostatic test pressure does not exceed the limit of 1265 Kg/Sq.cm. in the case of mild steel rods, 1400 Kg/Sq.cm. in the case of cold drawn steel wires and 340 Kg/Sq.cm. in the case of soft grade mild steel wires.

The Barrel thickness shall be such that under the specified hydrostatic test pressure, the maximum tensile stress in concrete when considered as effective to take stress along with the tensile reinforcement shall not exceed 20 Kg/Sq.cm. but the minimum barrel thickness shall be not less than 25 mm.

Longitudinal steel shall be provided not only for the purpose of forming a reinforcement cage of the required shape and size but also to be adequate as assessed by calculation to support as a hollow circular beam twice the design load and twice the weight of water required to filled across span equal to the length of pipe.

Extra spiral reinforcement of mild steel wire of diameter 3.15 mm at the end of the pipe shall be closely spaced, the spacing not exceeding 2.5 cm or 1/2 of the pitch whichever is less for a length of 150 mm minimum damage during handling.

The reinforcement in the reinforced concrete pipe shall extend through the length of the pipe and shall be so designed that it may be readily placed and maintained to designed shape and in the proper position within the pipe mould during the manufacturing process. The circumferential longitudinal reinforcement shall neither more than 10 cm. or four times the thickness of barrel, whichever is less nor less than the maximum size of aggregate plus the diameter of the bars used.

GENERAL

The methods of manufacture shall be such that the form and the dimensions of the finished pipe are accurate within the limit specified in Indian Standard No.458. The surface and edges of the pipes shall be well defined and true and their ends shall be square with the longitudinal axis. The ends of the pipes shall be further reinforced by an extra ring of reinforced to avoid breakage during transportation.

CONCRETE MIXING :

Concrete shall normally be mixed in a mechanical mixer. Mixing shall be continued until there is a uniform distribution of the materials and the mass is uniform in colour and consistency, but in no case shall the mixing be done for less than two minutes.

The concrete shall be placed before setting has commenced. It shall be ensured that the concrete is not dropped freely so as to cause segregation. The concrete shall be consolidated by spinning, vibrating, spinning combined with vibrations, or other appropriate mechanical means.

REINFORCEMENT CAGES :

Reinforcement cages for pipes shall extend throughout the pipe barrel and shall be wound round normal collapsible frames or drums. The cages shall consist of spiral or rings and straight of an annealed wire cold drawn wire or mild steel rod and may be circular cages shall be placed symmetrically with the thickness of the pipe wall.

Where double reinforcement cage is used the amount of steel in the cage shall be 75 percent of the weight of the inner cage while the total shall conform to these specified in the relevant tables of this specifications.

CURING :

Pipes manufactured in compliance with this standard shall be cured by immersion in water for a period of not less than two weeks in case of pipes made from ordinary portland cement or blast furnace slag cement and not less than one week in case of pipes made from rapid hardening portland cement. In the case of large pipes projecting partly above water level, the projecting portion shall be kept wet by any suitable means.

WORKMANSHIP AND FINISH :

Pipes shall be straight and free from excepting craze cracks. The ends of the pipes shall be square with their longitudinal axis so that when placed in a straight in the trench on opening between ends in contact shall exceed 3 mm in pipes upto 600 mm diameter (inclusive) and 6 mm in pipes larger than 600 mm diameter.

The outside and inside surface of the pipes shall be smooth, dense and hard and shall not be coated with cement wash or other preparation unless otherwise agreed to between the purchaser and the manufacture or supplier.

The pipes shall meet the test requirements viz. There edge bearing test, absorption test, hydrostatic test, permeability test, straightness test etc. as per I.S. 3597-1985.

The pipes shall free from defects resulting from imperfect grading of the aggregate mixing or moulding.

Pipes shall be free from load bents or bulges greater than 3.00 mm in depth and extending over a length in any direction greater than twice the thickness of barrel.

MARKING :

The following information be clearly marked on each pipe.

- (a) Class of pipe.
- (b) Date of manufacture and
- (c) Name of manufacturer or his registered trade mark or both.

Each pipe may also be marked with the I.S.S. certification mark.

SUPERVISION :

The contractor shall put the manufacturing order to the competent firm under intimation to Department and under consent supervision of Department. The pipes shall be got manufacturer to the required specification of latest I.S.S. one pipe from every lot of 100 pipes shall be broken in the presence of concerned, Engineer-in-charge or his representative and steel can shall be got weighted. Pipes shall be tested hydraulically as per I.S. 458 & 3597 to the required pressure in presence of concerned Engineer-in-charge or his representative and if during testing pipe found not to the requirement the whole lot shall be get rejected. Load bearing of pipes also shall be tested as per I.S. 458 & 3597.

- 9.1.2 The jointing materials such a sand, jute, rope, bitumen etc. shall be brought by the contractor at his own cost. The sand shall be clean, sharp hard and well graded and confirm to I.S.-383 (Coarse and fine aggregates from natural sources of concrete 1970 or latest version. It shall be washed before its use if, it contains clay, dirt etc. the jute, rope shall be of best quality, clean fibre free of dirt and knots. The jute 1-3 ply twisted rope of Ambadi hemp about 2 mm. thicker in diameter than annular space between collar and pipe shall be used.

9.2.0 STACKING OF MATERIALS :

- 9.2.1 Each and every pipe shall be examined inside and before laying, all pipes and fittings shall be found and free from visible defects. The pipe and fitting shall give a sharp clear noise when struck with light hammer.
- 9.2.2 Reasonable care shall be exercised in loading, transporting and unloading of the pipes and specials. Gradual unloading shall be done by inclined plane or by chain block. Handling shall be done such as to avoid impact.
- 9.2.3 Any damaged pipes, specials or collar shall be removed immediately from the site of work at the cost of the contractor.
- 9.2.4 The contractor shall have to make his own arrangements for obtaining permission for storing and stacking of pipes, specials and jointing materials, etc. by the road side from land owners i.e. concerned Government department, Municipalities or other local bodies or private owners.
- 9.2.5 Before, the actual laying of pipe line started, the pipes and fittings in required quantity shall be arranged lengthwise, by the site of the excavated trench without causing any obstacles to the traffic. If necessary, the pipe shall be got cut by the contractor at his own cost to accommodate specials or fittings or for any other reason.
- 9.2.6 The contractor shall be fully responsible for safety of materials at site.
- 9.3.0 PREPARATION OF PIPES :**
The pipes and specials shall be brushed throughout to remove any soil deposited or stones therein, particularly each end of the pipe shall be carefully cleaned, where jointing is to be done.
- 9.4.0 LAYING :**
- 9.4.1 Before laying, the trench section shall be got checked for its level and uniform grade as per L-section and plan and finished with proper bedding if required as directed, with the help of sight rails and bonning rods and shall be got approved from the Engineer-in-charge.
- 9.4.2 Drainage pipes are always laid with the socket at the higher and consequently, it is necessary to begining at the lower end of drains and to work upwards laying pipes shall confirm to I.S. 783-1967 or its latest version.
- 9.4.3 The contractor shall provide and maintain sight rails and bonning rods. The pipes shall be laid in a complete straight line with centre lines ranged accordingly by means of string stretched between sight centres of cross rails and no deviation will be permissible between the manholes. The pipe shall be laid from manhole started from the lower end. The bottom concrete of the manhole must be finished simultaneously with laying joints of pipes in that section.
- 9.4.4 Temporary Bench mark shall be provided by the contractor at a minimum distance of every 150 meters without any extra claim. These B.Ms. shall be either of stone masonry or mass concrete not less than 0.14 Cu.mt. The site of B.M. kept will be directed by the Engineer-in-charge.
- 9.4.5 The pipe shall be laid in reasonably dry condition and under no circumstances they shall be rest on slushy bedding.
- 9.4.6 The pipe shall be lowered by means of wooden bull and rope in case of light pipe upto 225 mm dia. while tripped and chain pulley block of sufficient capacity shall be used for heavy pipes above 250 mm dia.
- 9.4.7 No brick bats or hard stone or kapachi bigger than 20 mm size shall be allowed beneath the pipe line directly in touch with the pipe. Murrum bedding shall be provided if only directed by the Engineer-in-charge.
- 9.4.8 The pipe shall be laid in such a way that their longitudinal joints shall always come on the top and quite centre. The long collar shall first slipped over after cleaning the ends of pipes. The wedge shape groove at the end of the pipe shall be slipped with required quantity of jute dipped in hot tar or bitumen. The bitumen for this shall be heated till it is sufficiently plastic.
- 9.4.9 The next pipe shall then be brought forward and pressed till the jute ring in recess of first pipes sets in to the recess of the second pipe. The process shall be repeated for two three pipes, which shall then be packed up in usual manner by jack and in doing so, care shall be taken to see that there shall be no deflection from the alignment.

9.4.10 The collar than shall be brought systematically over the ends of pipes and kept equi-distance from the pipe with help of ends necessary wedge placed along periphery of collar. The space between the inside of colar and outside of the pipe shall be sprinkled with just sufficient water to make in to damp condition.

9.5.0 PREPARATION OF MORTAR :

9.5.1 Cement mortar of cement and sand shall be prepared in workman like manner in proportion of one (1.0) part of cement with one (1.0) part of sand in volume. First dry mixing shall be carried out and then added sufficient quantity of water to have a consistances of a semi-dry condition, suitable for caulking by caulking tools.

9.5.2 The mortar shall be prepared on clean and water tight platform and in required quantity only and shall be taken in to use before it starts setting. Only fresh mortar shall be used.

9.6.0 CAULKING :

9.6.1 The mortar so prepared shall be rammed and well packed and pressed with a caulking tool in to the annular space, the caulking shall be so firm that it shall be difficult to drive penknife into. The joint shall be finished off with a fillet slooping 45 degree alongwith the length of pipe. It shall be finished smooth with cement slurry.

9.6.2 If sub-soil or surface water meet with, the caulking shall be done with near quick setting cement mixed with water proofing compound, the whole caulking job shall be carried out in dry condition till cement joint set No extra payment shall be made on account of such job.

9.6.3 The joints shall be protected unti final set, from sub-drying winds, rain and frost.

9.6.4 In no case suh-soil water shall be allowed to rise in or above the pipe line before the cement mortar of joint has set up. Every precautions shall be taken to avoid floting of pipe line due to accumulation of water in the trench while pipe line is empty. No working or walking over the pipe after they are laid shall be allowed. After pipeline is jointed, earth shall be refilled on the sides of the pipeline upto the top of the pipe keeping at least 90 cm length of pipe line open at the joints. The refilling shall be done strictly as per specification of item of refilling of trenches. Care shall be taken to see that after such refilling, joints remain completely opened around till final set and hydraulic test is given and joints are inspected for leakage under pressure.

9.7.1 CURING OF JOINTS :

Every joints shall be kept wet for about 10 day for maturing. The section of pipe line jointed shall be convered with wet gunny bags and kept moist continuously for above said curing period.

9.8.0 HYDRAULIC TEST OF PIPES :

9.8.1 The contractor shall give at his own cost necessary hydraulic test of pipe line laid.

9.8.2 Each section of drain shall be tested for water tightness preferably between manholes.

To prevent change in alignment and disturbance after the pipes have been laid, it is desirable to back fill the pipes upto the top, keeping atleast 90 cm. length of pipe open at the joints. It is necessary aht the pipeline are filled up with water for about a week before commencing the application of pressure to allow for the absorption by pipe wall. Pipes shall be tested after the cement mortar joints have been made.

9.8.3 The line shall be tested as per I.S.8127-1967 (code of practice for laying for glazed stone-ware pipes) or its latest edition.

9.8.4 The contractor shall provide at his own testing equipment of approved make. This shall be approved by the Engineer-in-charge.

9.8.5 All pipes, specials, joints found to be leaking or cracked or bursted or observed unsuitable shall be removed and repaired. Contractor shall see that no end of any pipe length is kept open even temporarily and that all open ends are immediately at the end of every days work covered up either layer gunny bag cloth binded, properly by means of mild steel wires without any claim for extra cost.

9.8.6 Filling above the drains to a depth of twice the diameter of the pipeline shall be completely free from boulders, stones, or brick bats and shall be composed of selected hard variety of murrum well consolidated but not heavily tempered. In the remaining depth, the trench shall be filled up by the selected stuff and muttum as ordered by the Engineer-in-charge.

9.8.7 For crossing of obstacles, natural or built up, such as culvert drains bridges etc. the contractor shall approach respective authorities to obtain permission for crossing them. Such work left remaining to be carried out due to want of permission shall be carried out at any later stage or period within a time to the satisfaction of the Engineer-in-charge.

9.9.0 GENERAL :

9.9.1 After the satisfactory test of draining line the rubber plugs fitted to Y or T branches shall be taken out and ends shall have to be closed with cement concrete plugs or bricks bats as directed by the Engineer-in-charge. These plugs shall be fixed with mud mortar or cement mortar over the mud mortar of about 6 mm to 12 mm thick shall be plastered. All those works shall be done strictly as per instructions of the Engineer-in-charge. If directed, alternatively the branches of Y or T after fixing plugs shall be properly closed with a place of gunny bag and the same shall be tied with M.S. wire . The rate shall include the cost of all these materials and labour etc. complete.

9.9.2 If pipe-lines are laid in separate detached sections and not in continuous length due to any reasons, such as non-availability of pipes or due to obstacles or due to non-availability of permission etc., the contractor shall complete the work after words at the same rate as originally provided for the tenderer, without any claim for extra or compensation due to non-respect of permission or any other natural or unforeseen reasons and until the date of completion of work, shall be treated as in-complete.

9.9.3 Complete arrangements for water supply requirements for complete construction of work, hydraulic testing and for layout shall be done by the Contractor at his own cost. The water shall potable.

9.9.4 The contractor shall appoint a qualified site supervisor who can take the responsibilities and fixing the inner levels of the drains.

9.9.5 Temporary bench marks shall be provided and protected by the contractor at a minimum distance of every 150 meter at site without any extra cost. These bench marks shall be either of masonry or mass concrete or not less than 0.140 Cu.mt. The site of B.M. kept will be directed by Engineer-in-charge.

9.9.6 The rate includes crossing of all obstacles such as electric wire, telephone cable, water pipes, sewer, drains, manholes walls, culverts, khalkuvas, etc. coming in the laying of pipe lines work. Any damage done to this may be restored by the contractor without any extra claim. Any work of removing, repair of such structures or constructed in the process of laying pipe lines etc. shall be carried by the contractor without any claim for extra cost. Arrangements for dewatering and cleaning the khalkuvas shall be done by the contractor without any extra claim.

9.10.0 MODE OF MEASUREMENT AND PAYMENT :

9.10.1 The measurements shall be paid per meter length of the pipe line laid, jointed and tested and measured along the centre line and shall be paid according to the inner diameter of the pipes providing and as per the rates quoted by the tender in respective items of Schedule-B.

9.10.2 The pipes may be available in approximate size either in metric system, or British system. No additional payment or reduction in payment will be made for such approximate size.

9.10.3 No extra payment for dewatering or installing dewatering sets for pumping out such water shall be made. No extra payment for collar pits shall be made. No extra payment for cutting of pipes, if required shall be made to the Contractor.

9.10.4 In absence of hydraulic test 20% of the amount of the laying and jointing work of pipe line work will be withheld from the running bills till satisfactory hydraulic test is given. If level for invert of pipes in not maintained by the Contractor 100% payment shall be withheld.

ITEM NO. 10:

Providing and constructing sewer manholes , scraper manholes and unit house connection Chamber, as per type design in brick masonry in CM 1 : 5 and inside and outside 15mm thick plastering in C.M. 1 : 3 necessary 100 mm coping with reinforcement in R.C.C. M-200 , fixing polypropylen steps and fixing manhole frame and cover (but excluding supply of manhole frame and cover) over manholes and house connection chambers and fixing manhole cover (but excluding supply of

manhole covers) over scraper manhole etc. complete. Providing and fixing Safety chain wherever necessary as per the stipulation in the type design Complete as per latest CPHEEO manual. (Excluding excavation).

10.1.0 MATERIALS:

10.1.1 Water shall conform to M-1, Cement Conform to M-3, Stone coarse aggregate of 20 mm nominal size shall conform to M-12, Grit shall conform to M-8, and Steel reinforcement shall conform to M-18-19. Fly ash brick shall conform to M-15A, Cement mortar of specified proportion shall conform to M-11, The cost iron steps shall conform to M-79

10.1.2 Manhole cover with frame of required size and weight shall be procured by the contractor.

10.2.0 WORKMANSHIP:

10.2.1 The manhole of different types and sizes as specified shall be constructed in sewer line at such place and to such levels and dimension as shown in drawing or as directed.

10.2.2 Excavation :- The excavation for construction of manhole including dismantling of all types of roads surface guarding, barricading, lightening the trenches, dewatering if required, removing and replacing, shifting of telephone/electric cables, pipe line etc. and all other safety provisions like shoring and strutting etc. till refilling of trenches and completion of manhole construction, stacking of excavated stuff within the specified lead, back filling of selected excavated earth, watering and consolidation etc. complete shall be carried out as per relevant specification of item No.1.

10.2.3 Concrete work :- The bed concrete in C.C. 1:3:6, Coping in C.C. 1:1.5:3 and benching concrete and in proportion c.c. 1:2:4 (1 Cement : 2 coarse sand : stone aggregate of 20 mm nominal size) by volume with necessary centering and shuttering work shall be mixed. Placed deemed and or vibrated and cured as directed by Engineer-in-charge.

10.2.4 REINFORCEMENT:

10.4.1 All the reinforcement bars shall be accurately placed in exact position shown on the drawings and shall be security held in position during placing of concrete by annealed No. 1 binding work not less than 1 mm is size and by using stay block or metal chair spacers, metal hangers, supporting wires or other approved devices it sufficiently close intervals. Bars shall not be allowed to bag between supports nor displaced during concrete of any other operation of the work. Reinforcement after being placed in position shall be maintained in a clean condition until completely embedded in concrete. Special care shall be exercised to prevent any displacement of reinforcement in concrete already placed. To prevent reinforcement from corrosion, concrete cover shall be provided as indicated on drawings.

Bars shall be bend cold to specified shape and dimensions or as directed, attain proper radius of bends, Bars shall not be bent or straightened in a manner that will injure the materials. Bars bend during transport of handling shall be straightened before being used on the work. Unless otherwise specified for mild steel a 'U' type hook at the end of each bar shall invariably be provided to main reinforcement.

In case which are not round and in case of deformed bars, the diameter shall be taken as the diameter of circle having an equivalent effective area. The cold twisted steel bars shall be used or without hooks at the ends. Deformed bars without hooks shall however, comply with relevant anchorage requirements.

10.4.3 Bars crossing each other where required shall be secured by binding wires (annealed) of size not less than 1 mm in such a manner that they do not slip over each other at the time of fixing and concreting.

- 10.4.4 As far as possible bars of full length shall be used. In case this not possible over lapping of bars shall be done as directed. The overlaps shall be staggered for different bars and located at points along the span where either shear or bending moment is maximum.
- 10.4.5 When permitted or specified on the drawings joints of reinforcement bars shall butt welded so as to transmit their full stresses. Welded joints shall preferably located at points when steel will not be subject to more than 75 percent of the maximum permissible stresses and welds so staggered that at any one section not more than 20 percent of the rods are welded. It shall be ensured that no voids are left in welding and when welding is done in two or three stages, previous surface shall be cleaned properly. Ends of the bars shall be cleaned of all loose scale, rust, grease, paint and other foreign matter before welding. Only competent welders shall be employed on the work.

10.5.0 BRICK MASONRY WORK:

- 10.5.1 Before masonry is to be laid on concrete footing the top of concrete shall be cleaned and moistened. The contractor shall obtain the Engineer's approval for one foundation, bed, before foundation masonry is started.
- 10.5.2 Wetting of Bricks: The brick required for masonry shall be thoroughly wetted with clean water for amount two hours before use or as directed. The cassation of bubbles, when the bricks are wetted with water is an indication of through wetting of bricks.
- 10.5.3 Brick shall be laid in English bond unless directed otherwise. Half or out bricks shall not be used except when necessary to complete to bond. Closers in such case shall be cut to required size and used bear the ends of walls.
- 10.5.4 A layer of mortar shall be spread on full width for suitable length of the lower course; each brick shall first be properly bedded and set home by gently tamping with handle of trowel or wooden mallet. It's inside face shall be flushed with mortar the next brick is laid and pressed against it. On completion of course, the vertical joints shall be fully sealed from the top with mortar.
- 10.5.5 The wall shall be taken up truly in plumb. All corners shall be laid truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of brick course shall be kept uniform.
- 10.5.6 The brick shall be laid with from up wards. A set of tools comprising of wooden straight edges, monsoon spirit level, square half meter rub, and pins string and plumb shall be kept on the site of work for frequent checking during the progress of work.
- 10.5.7 Both the faces of walls of thickness greater than 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one meter over the rest of the work. Where this is not possible the work shall be raked back according to bond (and not left toothed) at an angle not stopper than 45 degrees.
- 10.5.8 All fixtures like pipe inlet and outlet of water C.I. Steps, manhole cover and frame etc. which are required to be built in wall shall be embedded in cement mortar.
- 10.5.9 Brick shall be so laid that all joints shall not expose 12 mm. The face joints shall be raked out as directed by raking tool daily during the progress of work, when the mortar is still green so as to provided key for plaster or pointing to be done.
- 10.5.10 For the face of brick work, plastering is to be done joints shall be racked out to a depth not less than thickness of joints. The face of brick work shall be cleaned and mortar dropping removed on very same day that brick work is laid.

10.6.0 PLASTER WORK:

- 10.6.1 The surface shall be cleaned of all dust, loose mortar droppings, traces of algae efflorescence and other foreign mortar by water or by brushing. Smooth surface shall be roughened by wire brushing if it is not hard and by backing if it is hard. In case of concrete surface, if a chemical retarder has been applied to the form work. The surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick/concrete surface where necessary shall be carried out to get an even surface.
- 10.6.2 The work shall be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such areas shall be moistened again.
- 10.6.3 The plaster about 15 x 15 cms. shall be first applied horizontally and vertically at not more than 2 meters intervals over the entire surface to serve as gauge. The surface of these gauges shall be truly in plane of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness, then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true with a trowel or wooden float accordingly excessive troweling or over working the float shall be avoided. All corners, arched angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering corners, arched junctions etc. shall be carried out with proper templates the size required.
- 10.6.4 Cement mortar for plaster shall be used within half an hour after addition of water. And mortar for plaster which is partially set shall be rejected and removed forthwith from the site.
- 10.6.5 In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically, when recommencing the plaster the edge of the old work shall be scraped clear and wetted with cement putty before plaster is applied to the adjustment areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cm. to any corners or arches. It shall not be closed on the body of features such as plaster bends and cornices not at the corners or arches. Horizontal joints in plaster work shall not also occur on walls and copings these invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

10.7.0 POINTING:

- 10.7.1 The flush pointing work shall be carried out with mortar of required proportion by volume before pointing to be started the joints shall be raked to such depth that the average of new mortar measured from eight the sunk surface of the finished pointing or from the edge or the brick shall be average 10 mm.
- 10.7.2 The mortar shall be pressed in to the raked out joints with a pointing trowel according to the type of pointing specified in item. The mortar shall not spread over the corner finished with the fixing of C.I. Steps and M.H. cover pointed tools.

10.8.0 FIXING OF POLY PROPYLENE STEPS AND MANHOLE COVER:

- 10.8.1 During the construction of masonry wall of the manhole the cement mortar of required proportion shall be used for embedding the Poly propylene steps in the wall masonry. The spacing of steps in the masonry shall be 300 mm centre to centre in the staggered position in the vertical direction with two staggered rows at 385 mm centre to centre in the horizontal direction the top of the manhole shall not be more than 300 mm above the benching and the centre line of two staggered rows shall be the centre line of the shorter side of manhole frame in the roof of chamber.

The detailed specifications for the "Poly propylene steps as below:

The Polypropylene conforming to an ASTM D-4101, injection molded around a 12 mm dia. IS 1786 grade Fe-415 steel reinforcing bar and should meet the load required 225 Kg. as per IS-5455. The measurement should be as per attached drawing. The tolerance in the length and width is +/- 5 mm and +/- 1 mm in thickness. The weight of the steps should not be less than 0.900 Kg.

- 10.8.2 Unchequered portion of the step shall be inserted with the risk cement mortar during the course of masonry work so constructed around the steps as to keep the step on its right position. The non-slip grap chequered portion of the steps shall be well kept outside the masonry.
- 10.8.3 During fixing of the steps, the shall not be damaged and shall not vibrate or shall not shake during ascents and decants otherwise they shall have to be re fixed correctly as per the drawings or as mentioned above.
- 10.8.4 Manhole frame shall be firmly and securely laid on top of shafts of conical tops in 25 mm thick cement mortar and shall be embedded in 150 mm the cement concrete of proportion 1:2:4 (1 Cement : 2 coarse sand : 4 Kapachi as aggregate of 20 mm nominal size) in such a way that the top of M.H. frame shall be flush with concrete surface and top surface neatly finished 25 mm thick with cement mortar 1:3 in conformity with ground or road levels.

10.9.0 OTHER REQUIREMENTS:

- 10.9.1 As per line and level and size of the manhole pit shall be excavated as per drawing or as ordered by the Engineer.
- 10.9.2 The foundation concrete 1:3:6 with required thickness as per drawing or as directed shall be laid after compacting the bottom of the pit. The cement concrete shall conform to specified specification of Cement Concrete.
- 10.9.3 The clear inside chamber size of opening shall be as per the drawing or as directed by the Engineer-in-charge.
- 10.9.4 The masonry wall shall be plastered inside with 15 mm thick 1:3 cement mortar and outside with flush joint. The off set for the concrete foundation shall be 100 mm on all sides beyond walls of chamber.
- 10.9.5 Whenever pipes enter or leave the masonry chamber bricks on edge must be so laid around the upper half of the pipes so as to form the arch to prevent the weight of the masonry chamber over it.
- 10.9.6 On the top of masonry walls 1:1 cement mortar shall be laid and then R.C.C. slab of grade 1:2:4 necessary and as directed by the Engineer with coarse aggregate of trap metal of 20 mm nominal shall be laid necessary from work and centering shall have to be provided by the contractor at his own cost as per relevant specification of cement concrete.
- 10.9.7 In the bottom of manhole the channel and benching shall be done in C.C. 1:2:4 (1 Cement : 2 Coarse sand : 4 graded stone aggregate of 20 mm nominal size) rising at a step in line from edge of the channel, the channel of the bottom of the chamber shall be plastered 15 mm thick in cement mortar. 1:3 (1 Cement : 3 fine sand) and steel trowel smooth.
- 10.9.8 Channels shall be in semi circular in the bottom half and a diameter equal to the sewer. Above the horizontal diameter, the side shall be extended vertically to the same level as the crown of the out going pipe and the top edge shall be suitably rounded off. The branch channels shall

also be similarly constructed with respect to the benching but at their junctions with the main channel an appropriate fall suitably rounded off in the direction of flow in the main channel shall be given.

10.9.9 For conical shaft of manhole necessary conical portion shall be treated from 750 mm below the bottom of concrete of slab for fixing of manhole cover and frame.

10.9.10 The item includes curing of all the cement work for 14 days.

10.10.1 MODE OF MEASUREMENTS & PAYMENTS:

10.10.1 Payment shall be made on the basis as per number of masonry manholes chambers constructed with all constructing materials labours, refilling curing, finishing providing and fixing C.I. steps constructing laying half round gutter fixing R.C.C. manhole cover etc. complete in all respect for incomplete item. Payment will be made on part rate basis.

10.10.2 The item will be paid per No. of construction of complete masonry manhole chamber as shown in the drawing up to the depth specified and shown in the type design drawing. For every increase or decrease in the minimum specified depth of masonry manhole chamber increase or decrease in rate shown in schedule B will be given taking in the construction every 10 CM increase or decrease depth of masonry chambers. For the purpose of payment of masonry chamber every increase or decrease of the 10 cm depth than the specified minimum depth of masonry manhole chambers as shown in drawing, an extra increase or decrease payment of rupees as mentioned in Schedule-B will paid more or deducted for every 10 cm depth.

10.10.3 The measurements shall be made for such number of chambers construction. The surplus excavated stuff shall be disposed of within a radius of 10 Kms. as directed by Engineer-in-charge without any extra claim.

10.10.4 The depth of manholes shall be the distance between the top manhole cover and the invert level of the main drain. The rate includes all labours, materials, tools and plant etc. required for satisfactory completion of this item as directed above.

10.10.5 The item include :-

- (i) Bed concrete slab concrete and copping with necessary reinforcement.
- (ii) Necessary brick work with cement plaster inside and outside completely.
- (iii) Providing and fixing polypropylene steps.
- (iv) Carting, conveying and fixing of manhole frame cover with necessary concrete and finishing.
- (v) Refilling with necessary watering and consolidation.
- (vi) Curing for 14 days.

ITEM NO.11:

Providing & construction Brick work using Fly Ash bricks having crushing strength not less than 35 kg./ sq .cm. in foundation & plinth in C.M. 1:6 (1 cement : 6 fine sand) etc. complete.

11.1.0 MATERIALS

Water shall conform to M-1, Cement shall conform to M-3, Sand shall conform to M-6, Flyash Building Bricks shall conform to M-15(A), Cement mortar shall conform to M-11.

11.2.0 WORKMANSHIP

11.2.1 Proportion : The proportion of cement mortar shall be 1:6 (1 cement, 6 fine sand) by volume.

11.2.2 Wetting of bricks : The bricks required for masonry work shall be thoroughly wetted with clean water for about two hours before use or as directed. The cessation of

- bubbles, when the bricks are wetted with water, is an indication of thorough wetting of bricks.
- 11.2.3 Laying : Bricks shall be laid in English bond unless directed otherwise. Half or cut bricks shall not be used except when necessary to complete the bond. Closures in such case shall be cut to required size and used near the ends of the walls.
- A layer of mortar shall be spread on full width for suitable length of the lower course. Each brick shall first be properly bedded and set home by gently tapping with handle of trowel or wooden mallet. Its inside face shall be flushed with mortar before the next brick is laid and pressed against it. On completion of course, the vertical joints shall be fully filled from the top with mortar.
- The walls shall be taken up truly in plumb. All courses shall be truly horizontal and all vertical joint shall be truly vertical. Vertical joints in alternate course shall generally be directly one over the other. The thickness of brick course shall be kept in uniform.
- The brick shall be laid with frogs up wards. A set of tools comprising of wooden straight edges, manson's spirit level, square half metre rub, and pins, string and plumb shall be kept on the site of work for frequent checking during the progress of work.
- Both the faces of walls of thickness greater than 23 cms. shall be kept in proper place. All the connected brick work shall be kept not more than one metre over the rest of the work. Where this is not possible, the work shall be raked back according to bond (and not left toothed) at an angle not steeper than 45 degrees.
- All fixtures, pipes, outlet of water, hold fasts of doors and windows etc. which are required to be built in wall shall be embedded in cement mortar.
- 11.2.4 Joints : Bricks shall be so laid that all joints are quite flush with mortar. Thickness of joints shall not exceed 12 mm. The face joints shall be raked out as directed by raking tool daily during the progress of work, when the mortar is still green so as to provide key for plaster or pointing to be done.
- The face of brick shall be cleaned the very day on which the brick work is laid and all mortar dropping removed.
- 11.2.5 Curing : Green work shall be protected from rain suitably. Masonry work shall be kept moist on all the faces for a period of seven days. The top of masonry work shall be kept well wetted at the close of the day.
- 11.2.6 Preparation of Foundation Bed : If the foundation is to be laid, directly on the excavated bed, the bed shall be levelled, cleared of all loose materials, cleaned and wetted before starting masonry.
- If masonry is to be laid on concrete footing the top of concrete shall be cleaned and moistened. The contractor shall obtain the engineer's approval for the foundation bed, before foundation masonry is started. When pucca flooring is to be provided flush with the top to plinth, the inside plinth offset shall be kept lower than the outside plinth top by the thickness of the flooring.
- 11.2.7 Fixtures - The frames of doors, windows, cup-boards etc. shall be housed into the brick work at the correct location and level as directed. The heavy steel doors, window frames etc. shall be built in with brick work, but for ordinary steel doors and windows required opening for frames, hold-fasts etc. shall be left in the wall and frames embedded later on in order to avoid damage to the frames.
- 11.2.8 Scaffolding - Necessary scaffolding shall be provided. The supports of the scaffolding shall be sound and strong tied together with horizontal pieces, over which the scaffolding planks shall be fixed. Simple scaffolding shall be allowed normally. In this case scaffolding hole shall rest in hole header horizontal course only. Minimum number of holes shall be left in brick work for supporting horizontal scaffolding poles. The contractor is responsible for providing and maintaining sufficiently strong scaffolding so as to withstand all loads likely to come upon it.
- 11.2.9 Packing out of Joints - For the face of brick work, where plastering is to be done, joints shall be raked out to a depth not less than thickness of joints. The face of brick work shall be cleaned and mortar dropping removed on very same day that brick work is laid.

- 11.3.0 MODE OF MEASUREMENTS & PAYMENT :
- 11.3.1 The measurements of this item shall be taken for the brick masonry fully completed for limiting dimensions not exceeding those shown on the plans or as directed shall be final.
- 11.3.2 No deductions shall be made from quantity of brick work. No extra payment will be made for embedding in masonry holes in respect of the following items ---
- i] Ends of joints, beams, posts, girders, rafters, purlins, trusses, corbel, steps etc. where cross sectional area does not exceed 500 Sq.Cm.
 - ii] Opening not exceeding 1000 Sq.Cm.
 - iii] Wall plate and bed plates, bearing of slab, chajjas, and like whose thickness does not exceed 10 Cms. and the bearing does not extend the full thickness of wall.
 - iv] Drainage holes and recesses for cement concrete blocks to embed hold fasts for doors, windows etc.
 - v] Iron fixtures; pipes upto 300 mm. dia. hold fasts of doors and windows built into masonry and pipes etc. for concealed wiring.
 - vi] Forming charges of section not exceeding 350 Sq.Cm. in masonry.
 - vii] Apertures for fire places, shall not be deducted nor shall extra labour required to make splaying of jams, throating and making arches over the aperture be paid for separately.
- 11.3.3 The rate shall be for a unit of one cubic metre.

ITEM NO.12:

Providing 15 mm thick plaster in C.M. 1:3 in single coat for plastering for all heights for brick masonry surface and all RCC surface and finished even and smooth with floating coat of neat cement slurry as directed by Engineer in charge.

- 12.1.0 MATERIALS
Water shall conform to M-1. The cement mortar of proportion 1:3 shall conform to M-11.
- 12.2.0 WORKMANSHIP
- 12.2.1 Scaffolding - Wooden ballies, bamboos, planks, treatles and other scaffolding shall be sound. These shall be properly examined before erection and use. Stage scaffolding shall be provided for ceiling plaster which shall be independent of the walls.
- 12.2.2 Preparation of Background - The surface shall be cleaned of all dust, loose mortar droppings, traces of algae, efflorescence and other foreign matter by water or by brushing. Smooth surface be roughened by wire brushing if it is not hard and hacking if it is hard. In case of concrete surface, if a chemical retarder has been applied to the form work, the surface shall be roughened by wire brushing and all the resulting dust and loose particles cleaned off and care shall be taken that none of the retarders is left on the surface. Trimming of projections on brick/concrete surfaces where necessary shall be carried out to get an even surface.
Raking of joints in case of masonry work where necessary, shall be allowed to dry out for sufficient period before carrying out the plaster work.
The work shall not be soaked but only damped evenly before applying the plaster. If the surface becomes dry, such areas shall be moistened again.
For external plaster, the plastering operation shall be started from top floor and carried downwards. For internal plaster, the plastering operations may be started wherever the building frame and cladding work are ready and the temporary supports of the ceiling resting on the wall of the floor have been removed. Ceiling plaster shall be completed before starting plaster to walls.
- 12.2.3 APPLICATION OF PLASTER
The plaster about 15 x 15 Cms. shall be first applied horizontally and vertically at not more than 2 metres intervals over the entire surface to serve as gauge. The surface gauges shall be truly in place of the finished plastered surface. The mortar shall then be applied in uniform surface slightly more than the specified thickness then brought to a true surface by working a wooden straight edge reaching across the gauges with small upward and sideways movements at a time. Finally, the surface shall be finished off true

with a trowel of wooden flat according as a smooth or a sandy granular texture is required. Excessive trowelling or overworking the float shall be avoided. All corners, arises, angles and junctions shall be truly vertical or horizontal as the case may be and shall be carefully finished. Rounding or chamfering, corners, junctions etc. shall be carried out with proper templates to the size required.

Cement plaster shall be used within half an hour after addition of water. Any mortar or plaster which is partially set shall be rejected and removed forthwith from the site. In suspending the work at the end of the day, the plaster shall be left out clean to the line both horizontally and vertically. When recommending the plaster, the edges of the old work shall be scrapped clean and wetted with cement putty before plaster is applied to the adjacent areas to enable the two to properly join together. Plastering work shall be closed at the end of the day on the body of the wall and nearer than 15 cms. to any corners or arises. It shall not be closed on the body of features such as plaster bands and cornices not at the corners or arises. Horizontal points in plaster work shall not also occur on parapet tops and copings as those invariably lead to leakage. No portion of the surface shall be left out initially to be packed up later on.

Each coat shall be kept damp continuously till the next coat is applied for a minimum period of 7 days. Moistening shall commence as soon as plaster is hardened sufficiently. Soaking or walls shall be avoided and only as much water as can be readily absorbed shall be used, excessive evaporation on the sunny or windward side of building in hot air to dry weather shall be prevented by hanging matting or gunny bags on the outside of the plaster and keeping them wet.

12.3.0 MODE OF MEASUREMENTS & PAYMENT

12.3.1 The rate shall include the cost of all materials, labour and scaffolding etc. involved in the operations described under workmanship.

12.3.2 All plastering shall be measured in square metres unless otherwise specified. Length, breadth or height shall be measured correct to a centimetre.

12.3.3 Thickness of the plaster shall be exclusive of the thickness of the key i.e. grooves or open joints in brick work, stone work etc. or space between laths. Thickness of plaster shall be average thickness with minimum 10 mm. at any point on this surface.

12.3.4 This item includes plastering up to floor two level.

12.3.5 The measurement of wall plastering shall be taken between the walls or partition (dimensions before plastering being taken) for length and from the top of floor or skirting to ceiling for height. Depth of cover of cornices if any, shall be deducted.

12.3.6 Soffits of stairs shall be measured as plastering on ceilings. Blowing soffits shall be measured separately.

12.3.7 For jambs, soffits, sills etc. for openings not exceeding 0.5 Sq.Mts. each in area for ends of joints, beams, posts, girders, step etc. not exceeding 0.5 Sq.Mts. each in area for and for openings exceeding 0.5 Sq.Mts. and not exceeding 3 Sq.Mts. in each area deductions and additions shall be made in the following manner-

a] No deductions shall be made for ends of joints, beams, posts etc. and openings not exceeding 0.5 Sq.Mts. each and no addition shall be made for reveals, jambs, soffits, sills etc. of these openings for finish to plaster around ends of joints, beams, posts etc.

b] Deduction for openings exceeding 0.5 Sq.Mts. but not exceeding 3 Sq.Mts. each shall be made as follows and no additions shall be made for reveals, jambs, soffits sills etc. of these openings --

i] When both faces of all wall are plastered with same plaster, deduction shall be made for one face only.

ii] When two faces of wall are plastered with different types of plaster or if one face is plastered and the other pointed, deductions shall be made from the plaster or pointing on the side of frame for doors, windows etc. on which width of reveals is less than that on the other side but no deduction shall be made on the other side. Where width of reveals on both faces of all are equal, deductions of 50% of area of opening on each face shall be made from areas of plaster and/or pointing as the case may be.

- 12.3.8 For openings having door frames equal to projecting beyond the thickness of wall, full deductions for opening shall be made from each plastered face of the wall.
- 12.3.9 In case of opening of area above 3 Sq.Mts. each deductions shall be made for opening but jambs, soffits and sills shall be measured.
- 12.3.10 The rate shall be for a unit of one Sq.Mts.

ITEM NO.13:

Providing and laying cement concrete 1:1.5:3 (1 cement: 1.5 sand:3 graded stone agg. 20 mm nominal size) & curing comp. Includ.cost of form work but exclu. Cost of reinforcement for reinforced concrete work in : (A) Foundation, footing, Base of columns and Mass concrete.

ITEM NO.14:

Raising & Lowering Eixsiting Machine holes (with frames) of drainage, storm drainage, sewer trap chamber, scraper machine hole frame & cover any utility services up to newly carpeted/recarpeted road surface including both of plain cement concrete ordinary grade 1:1.5:3.(1 Part of cement : 1.5 Part of sand : 3 part of course aggregate) The inside & outside surface of chamber shall be plastered in cement mortar 1:3 (1 part of Cement and 3 part of sand) include lobour required to carry out the work. and cleaning the bitumen on the top surface & removing road material from machine hole etc. complete.

ITEM NO.15:

Making connection with the manhole by boring hole on the masonry of manhole and jointing pipe with cement mortar in prop. (1:2) inside as well as out side of existing manhole, curing etc. complete as directed by Engineer-in-charge.

15.1.0 MATERIALS :

- 15.1.1 WATER : Water shall conform to M-1. Detailed specification of material.
- 15.1.2 CEMENT : Cement shall conform to M-3. Detailed specification of material.
- 15.1.3 SAND : Fine aggregate 0.15 mm to 5.00 (about 0.00597 to 3/16") I.S. sieve No.15 to 480 shall confirm to relevant I. S. specification of latest version.

15.1.4 COARSE AGGREGATE :

- 15.1.4.1 Coarse aggregate 5 mm to 40 mm shall conform to the relevant I.S. Specification of latest version.
- 15.1.4.2 SIZE : The maximum size of coarse aggregate shall be 40 mm but normally not greater than 1/4 of the minimum thickness of concrete provided that in case of R.C.C. this size present no difficulty to surround the reinforcement thoroughly and fill up the gap of the form work fully and is less than the minimum cover by 6 mm for plan concrete, maximum size of the coarse aggregate shall be up to 40 mm subject to the above limitation and provided no limiting size is specified in the special provisions.
- 15.1.4.3 Generally, a maximum size of 20 mm shall be found satisfactory for reinforced concrete work.
- 15.1.4.4 The grading between the maximum size and minimum size of 5 mm shall be such as to produce a dense concrete of specified proportion and consistency that will work readily into position without any aggregate and without the use of excessive water content.

15.1.5 CEMENT MORTAR :

Sand or fine aggregate size 0.15 mm to 5 mm I.S.Sieve No.15 to 480 conforming to relevant specification shall be supplied by the contractor.

15.1.6 BRICKS :

- 15.1.6.1 First class fly ash lime bricks shall be used for this item & shall comply with specification of relevant I.S. (Latest version) sample of brick shall be got approved by the Engineer, who will keep it in his office for reference.

15.1.7 STEPS :

As and where required polypropylene steps shall be fixed as per Item No.6.

15.2.0 WORKMANSHIP :

- 15.2.1 Item includes excavation dismantling of B. B. masonry, plaster, C.C. breaking of existing pipe as per requirements etc. if required for jointing new storm water drain with existing drain.
- 15.2.2 B.B. masonry shall be constructed as per existing section of drain and as per instruction given by the Engineer-in-charge if necessary 20 mm thick plaster in prop. 1:2 c.m. shall be carried out 0.60 mt. either size of the joint.
- 15.3.0 MODE OF MEASUREMENTS AND PAYMENTS :**
- 15.3.1 Item includes all internal, labour plant and tools required for it.
- 15.3.2 Rate shall be for a unit of Nos.

ITEM NO.16:

**Making connection with the machinehole
For Storm Drainage**

ITEM NO.17:

Dewatering by pumping set of required capacity including temporary platform carting pumping at site and fixing the same in position including all accessories, and fuel and labour etc. complete.

(Note :- This item shall only be executed when bailing out of drainage/ subsoil water is more than 5 HP.hour).

For dewatering of drainage water from storm line and subsoil water if any shall be diverted with the help of necessary tools, bibs, plants, equipments, diesel pump, fuel etc. All the equipments required for dewatering shall be provided operated and maintained by the contractor himself. The necessary suction and delivery pipe shall be of sufficient length to divert the sewage/subsoil water from the trenches.

The Contractor must repair the leakage joints of storm/private drainage as early as possible as per instruction of Engineer-in-charge.

The rate includes all the tools, plants, machineries, pipes, labour, fuel etc. require for satisfactory completion of this item.

The mode of payment shall be as per the HP.Hour of pump so run.

ITEM NO.18:

Providing R.C.C. precast machinehole frame with cover as per type design for circular machinehole and scraper machinehole etc. complete.

(A) For House Connection Chamber light duty

(B) For Circular manhole of I.S.I.Mark

Outer diameter	:-	860 mm
Thickness	:-	175 mm
Protection for edge	:-	25 x 25 x 3 mm M.S. angle shall be provided to project the edges
		of frame with anti corrosive paints.
Clear Opening	:-	560 mm
Tolerance	:-	+/- 5 mm.
Heavy duty Cover (Circular)	:-	
Outer diameter	:-	715 mm
Thickness	:-	100 mm
Lifting hooks	:-	16 mm Tot Bar welded to the bottom with steel. It shall be easily and quickly opened with crow bars and pickaxes.

Protection for edge :- Same as for frame.

Design Load and carrying capacity: 35 M.T.

Tolerance : +/- 5 mm

NOTES:-

- (i) Cover shall conform I.S. 12592 (Part-I 1988.)
- (ii) Frame shall conform I.S. 12592 (Part-II 1991)
- (iii) After production of each lot of manhole frame and cover the contractor shall send the offer letter for testing of same to Drainage Engineer. The authorised representative of Drainage Engineer shall select the specimens of cover as per I.S. for the load test, which should be carried out at S.V.R.College of Engineering, Surat. The specimens of frame should be checked for its reinforcement which must be provided as per detailed drawings attached with tender. The cost for testing of manhole cover and frame broken for inspection shall be born by the contractor in any case.

(C) For Scraper manhole.

DIMENSIONS FOR EACH SLEEPER:

Length (L) 1100 mm

Breadth (B) 350 mm

Thickness (T) 100 mm

Protection for edge: - 25 x 25 x 3 mm. M.S. angle shall be provided to protect the edges of sleeper and the four sides of sleeper shall be covered with 100 mm width M.S. strip having thickness 2 mm.

Clear Opening of

Scraper manhole :- 900 mm x 1200 mm

Reinforcement :- As show in drawing.

Frame

:- Frame shall be made from 2 mm thick M.S. plate as shown in drawing.

Lifting Hooks

:- 16 mm M.S. bar welded to the bottom steel.

It shall be easily and quickly opened with crow bars and pickaxes.

Design load and

Carrying capacity :- 25 M.T.

NOTES:-

- (i) After production of each lot of sleepers the contractor shall send the offer letter for testing of same to Engineer-in-charge. The authorised representative of Engineer-in-charge shall select the specimens of sleepers as per I.S. for the load test which shall be carried out at S.V.R. College of Engineering, Surat. The cost of testing of sleeper for inspection shall be born by the Contractor in any case.
- (ii) 4% of the sleepers will be selected for load test and if the sample fails to carry the designed load, the whole lot shall be liable for rejection.
- (iii) 25% of the prepared loat shall be selected for physical (for dimension and workmanship) testing. The tolerance given below shall be strictly followed.
 - Length - 1100 mm +/-5 mm
 - Width - 350 mm +/-3 mm
 - Thickness - 100 mm +/-2.5 mm
- (iv) Each sleeper shall be marked with your of manufacturing and notation of SMC-DRG.

MODE OF MEASUREMENT AND PAYMENT:

The mode of payment shall be as per No.

ITEM NO.19:

Providing and filling Rubble including hand packing and filling interstices with quarry spalls behind abutment and between returns as directed.

ITEM NO.20:

Refilling of pipeline trenches incl. ramming, watering, consolidating, desposal of surplus stuff as directed within a radius of 3.0 Km.

20.1.0 WORKMANSHIP

20.1.1 The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken.

20.1.2 As soon as the work of pipe laying has been completed and measured the site of drain shall be cleared of all debris, brick bats, mortar droppings etc. and filling with earth in layers not exceeding 20 cms. Each layer shall be adequately watered, rammed and consolidated before the succeeding layer is laid. The earth shall be rammed with iron or wooden rammers where feasible and with the butt ends of crow, bars, where rammer cannot be used. When filling reaches finished level, the surface shall be flooded with water for at least 24 hours and allowed to dry and then rammed and consolidated and then rammed and consolidated the finish level of filling shall be kept the shape intended to be given to road surface. In short after the refilling is done the settlement of the trench shall be sole responsibility of the Contractor only Rolling shall be continued till the density achieved is at least 98 percent of the maximum dry density for the material as determined by the method outlined in IS: 2720 (Part-8). The surface of any layer of material on completion of compaction shall be well closed, free from movement under compaction equipment and from compaction planes, ridges, cracks or loose material. All loose, segregated or otherwise defective areas shall be made good to the full thickness of layer and re-compacted.

20.1.3 In case where Engineer-in-charge feels necessary the consolidation may be done by power rollers. The extent of consolidation required shall be specified or as directed.

20.1.4 The excavated stuff of the selected type shall be allowed to be used in filling the trenches and plinth. Under no circumstances black cotton soil be used for filling the plinth.

20.1.5 Refilling of material should be done in layers. After refilling of soil in the excavated trench work, the contractor should ensure that proper compaction is achieved. For ensuring total compaction, the FIELD DRY DENSITY achieved should be at least 98% of the MAXIMUM DRY DENSITY after compaction of refilled material. All the cost for testing of material to be refilled and ensuring total compaction shall be born by Contractor

20.2.0 MODE OF MEASUREMENTS & PAYMENTS

20.2.1 The payment shall be made for filling in plinth and trenches. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.

20.2.2 The rate shall be for a unit of one cubic metre.

ITEM NO.21:

Temporary diversion of sewage by plugging the machinehole of the sewer line. The necessary rubber plug and Air Compressor arraignment Etc. shall be supplied by The contractor at own cost for the work.

ITEM NO.22:

Providing & construction simple chamber of 23 cm. th' B.B. Masonry in C.M 1:5 with cement plaster 15 mm th' in C.M. 1:3 inside & outside to exposed faces, R.C.C. top slab with 1:2:4 mix (1 cement: 2 Sand : 4 Grade stone aggregate 20mm size) ,Foundation concrete 1:5:10 & fixing C.I. cover with frame to be not less than 38 kg. On top etc. comp. Inside dimension,455 x 610 mm &450 mm deep for single pipe.

22.1.0 Materials:

Water shall confirm M-1. Cement shall confirm to M-3. Coarse sand shall confirm to M-6. Brick shall confirm to M-15 Cement mortar shall confirm to M-11.

22.2.0 Workmanship:-

22.2.1 The item covers the construction of simple chamber of clear size 0.45 x 0.60 mts. with 23 thick brick wall in C.M.1:8 and smooth plaster 12 mm thick C.M. 1:4 Bedding concrete of C.C. 1:5:10,150 mm thick, the projected bed concrete beyond chamber wall shall be of 75 mm. The chamber cover shall be of 25 mm thick rough kola stone fixed with C.M. 1:1 etc. comp.

22.2.2 Specification for item No.1 [a] shall be read for excavation, & specification for Item No.3 shall be adopted for P.C.C. and specification for Item No.10 shall be read for B.B. Masonry and specification for Item No.25 shall be read for plaster work except that the thickness of plaster shall be 12 mm thick in CM 1:4.

22.3.0 Mode of Measurements and payments:-

[1] The rates including all labors, materials, tools and plats etc. required for satisfactory completion of this work.

[2] The rate shall be for a unit of one number.

ITEM NO.23:

Providing and supplying in standard length ISI mark rigid unplasticized PVC pipes suitable for potable water with ring fit joint including cost of rings, as per IS specification no.4985/1988 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the departmental stores and including cost of jointing material etc. complete. 6 kg/cm² Lowering, laying, fixing and jointing PVC/uPVC/CPVC pipes and specials of following class and diameter including cost of conveyance from stores to site of works including cost of labour, material, cement solvent, giving satisfactory hydraulic testing as per ISI code.

23.1.0 MATERIALS :

The specified dia. P.V.C. spigot and socket soil or waste pipe shall conform M-68-A.

23.2.0 WORKMANSHIP :

23.1.0 The P.V.C. spigot and Socket soil or waster pipe shall be joint as per following procedure.

23.1.1 Cut the P.V.C. pipe with a fine to the saw to the required length pipe should be cut square.

23.1.2 Chamfer the edge of the pipe to be inserted at an angle of about 15 to about 1/3 rd. the wall thickness, using a coarse file.

23.1.3 Make sure the spigot and socket are the roughly clean and dry.

23.1.4 Insert the pipe into the socket without the seal ring and mark along the pipe, when it is fully inserted.

23.1.5 Fix the rubber ring into the groove without twisting it.

23.1.6 Apply jointing lubricant to the chamfered end of the pipe, upto the make made on spigot or to the socket end of the fitting.

23.1.7 Push the pipe firmly into the socket till the gap between the mark on the spigot and socket is about 10mm to allow for thermal expansion.

23.2.0 The pipe clips should be spaced at intervals of no more then ten times the outside diameter of pipes for horizontal runs & for vertical lines are spaced at intervals of one meter to a maximum of two meters according to pipe diameter.

23.3.0 All entry to main stacks should be protected with minimum 50mm water seal trap. Wherever there is mixing of soil & waste lines

- 23.4.0 Smoke just should be avoided and test plug/ socket plug should be used for testing the lines.
- 23.5.0 All soil pipes shall be carried up above the roof and shall have a wire balloon guard or a cowl.
- 23.6.0 The ventilation pipe or shaft shall be carried out to a height of at least one metre above the outer covering of the roof of the building or in the case of windows in a gable wall or a dormer two meters above the top of the windows. In case of flat roof to which access for use is provided, it shall be carried out upto a height of at least one meter above the parapet or two meters measured vertically from the top of any windows or opening which may exist upto a horizontal distance of five meters from the vent pipe into such building and in no case shall be carried out to a height less than three meters.
- 23.7.0 Where ventilating pipes are carried in pipe shafts, the shafts, shall be of a minimum size of one meter. If the shafts are also used to give light and air to rooms, the ventilating pipes must be carried out to a horizontal distance at roof level not less than five meter from the site of the shaft.
- 23.8.0 The connection between the main pipe and branch pipes shall be made by using branches and bends with access doors for cleaning.
- 23.9.0 The waste from lavatories, kitchens basins, sinks, baths and other floor traps shall be separately connected to respective stacks of upper floors. The waste stack of lavatories shall be connected directly to main hole while the waste stack of other shall be separately discharged over gully trap.
- 23.10.0 MODE OF MEASUREMENTS & PAYMENT :
- 23.10.1 The length of pipe shall be measured including all fittings along its length in running meters correct to a centimeter. No allowance shall be made for the portion of pipe length entered in the sockets of the adjacent pipe or fittings.
- 23.10.2 The rate includes all labour and materials, tool and plant etc. required for satisfactory completion of this item.
- 23.10.3 The rate shall be for a unit of one running meter.

ITEM NO.24:

Providing and laying in trenches galvanized mild steel tubes (medium- grade) TATA, ZENITH,ASIAN INDAL make of the following nominal bore & tube fittings etc. comp.

- (A) 25 mm dia
- (B) 40 mm dia
- (C) 65 mm dia

24.1.0 MATERIALS

Glc tubes of specified dia. nominal bore shall conform to I.S. 1239-1968. The galvanized fittings, clamps, etc. required for specified dia. bore pipes shall be of best quality and make as approved by the Engineer-in- charge.(Galvanized iron pipes and fittings shall conform to M-56)

24.2.0 WORKMANSHIP

- 24.2.1 Cutting, Laying & Jointing - When the tubes are to be cut or rethreaded, the ends shall be carefully filed out so that no obstruction to bore is offered. The ends of the tubes shall then be threaded conforming to the requirements of I.S. 554- 1955 with pipe dies and taps carefully in such a manner as will not result in slackness of joints when the two pieces are screwed together.

The taps and dies shall be used only for straightening screw threads which have become bent or damaged and shall not be used for turning of the threads so as to make them slack as the latter procedure may not result in a water tight joint. The screw threads for the tube and shall be protected from edge until they are fitted.

In jointing the tubes, the inside of the socket screwed end of the tubes shall be oiled and smeared with white or red lead and wrapping around with a few turns of fine spun yarn round the screwed end of the tube. The end shall then be tightly screwed in the socket, tees, etc. With a pipe wrench. Care shall be taken that all pipes and fittings are properly jointed so as to

make the joints completely water tight and pipes are kept at all times free from dust and dirt during fixing. Burr from the joints shall be removed after screwing. After laying the open ends of the pipes shall be temporarily plugged to prevent access of water, soil or any other foreign matter.

Any threads exposed after jointing shall be painted or in the case of underground piping thickly coated with approved anti-corrosive paint to prevent corrosion.

- 24.2.2 Laying in Trenches- The width and depth of the trenches for different diameters of the tubes shall be as – For 15 to 80 mm. dia. tube width of trenches shall be 30 cms. And depth of trenches 60 cms.

At joints, the trench width shall be widened where necessary. The work of excavation and refilling shall be done true to line and gradient in accordance with general specifications of earth work in trenches.

The pipes shall be painted with two coats of anti-corrosive bitumastic paint of approved quality. The pipe shall be laid on a layer of 75 mm. sand filling up to 150 mm. above the pipe if so specified. The remaining portion of trench shall be then filled with excavation earth. The surplus earth shall be disposed of as directed.

When the excavation is done in rock the bottom shall cut deep enough to permit the pipe to be laid and cushion of sand 75 mm. In case of bigger diameter of tube where pressure is very high, thrust block of cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate of 20 mm. nominal size) shall be constructed on all bends to transmit the hydraulic thrust without imparting the ground and spreading it over a sufficient area if so specified.

- 24.2.2 Fixing of tube fitting to wall ceiling and floors:

In case of fixing of tubes and fittings to the walls of ceilings, there shall run on the surface of the wall of ceiling (not in chase) unless otherwise specified. The fixing shall be done by means of standard patter, holder clamps keeping the pipes about 15 mm. Clear of the wall. When it is found necessary to conceal the pipes and when specified so, chasing may be adopted or pipe fixed in ducts or recesses etc. provided that there is sufficient space to work on the pipe with usual tools. The pipe shall not ordinarily be buried in walls or solid floors, where unavoidable, pipes may be buried for short distances provided that adequate protection is given against damage and where so required joints are not buried. Where required M.S. tube salve shall be fixed at a place a pipe is passing through a wall or floors, it should be painted with anti-corrosive bitumastic paint of approved quality. The pipe shall not come in contact with lime mortar of lime concrete as the pipe is affected by lime. Under the floors the pipe shall be laid in layer of sand filling.

- 24.2.3 All pipes and fittings shall be fixed truly vertical and horizontal unless unavoidable. The pipes shall be fixed to walls with standard pattern clamps of required size and shape, one end of which shall be properly plugged or cemented into walls with cement mortar 1:3 (1 Cement : 3 coarse sand and the other tightened round the pipes of bold in securely. These clamps shall be spaced at regular intervals in straight lengths at 2 M C/C interval in horizontal run and 25 m. interval in vertical run. For pipe of 15 mm dia up to 25 mm dia. The holes in the walls and floors shall be made by drilling with chisel or jumper and not be dismantling the brick work or concrete. However for bigger diameter pipes the holes shall be carefully made of the smallest required size. After fixing the pipe, the holes shall be made good with cement mortar 1:3 (1 Cement: 3 coarse sand) and properly finishing to match the adjacent surface.

- 24.2.4 Testing of Joints - After laying and jointing, the pipes and fittings shall be inspected under working conditions of pressure and flow. Any joint found leaking shall be redone, and all leaking pipes removed and replaced without extra cost.

The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg./Sq.Cm. The pipe shall be slowly and carefully charged with water allowing all air to escape and avoiding all stock and water hammer. The draw off takes and stock shall then be closed and specified hydraulic pressure shall be applied gradually. The pressure gauge must be accurate. The pipes and fittings shall be in sections as the work of laying proceeds, veering the joints exposed for inspection during the testing.

24.3.0 MODE OF MEASUREMENTS & PAYMENTS

- 24.3.1 The description of each item, shall unless otherwise stated, be held to include where necessary, conveyances and delivery, handling, unloading, storing, fabrication hoisting, all labor for finishing to required shape and size setting fitting in position, straight, cutting and waste, return of packing etc.
- 24.3.2 The length shall be measured on running meter basis of finished work. The length shall be taken along the center line of the pipe and fittings. The pipes fixed to walls, ceiling floors etc. shall be measured and paid under this item. 24.3.3 All the work shall be measured in decimal system as fixed in its place, subject to tolerance given below unless otherwise stated.
- [i] Dimension shall be measured to the nearest 0.01 metre.
- [ii] Area shall be worked out to the nearest 0.01 Sq.mt.
- 24.3.4 In case of fittings of unequal bore, the largest bore shall be measured for the test.
- 24.3.5 Testing of pipe lines, fittings and joints included for providing all plant and appliances necessary for obtaining access to the work to be tested and carrying out the tests.
- 24.3.6 The rate includes Glc tubing with all fittings (such as bends, sockets, springs, elbows, tees, crosses, short pieces, clamps and plug unions etc.) and fixing complete with clamping wall-hooks, wooden plugs etc. and also cutting screwing and waste and for making forged (or hand made) bends on piping as required. The rate also includes cutting through walls, floors etc. and their making good and painting exposed threads with anti-corrosive paint as above and testing. Where tubes are to be fixed to wall, ceiling and flooring, the rates shall not include painting of pipes, providing sleeves and sand filling under floor for which separate payment shall be made.
- 24.3.7 The rate include painting of pipes and sand filling all round tubes for which separate payment shall not be made. The length shall be measured on running metre basis.
- 24.3.8 The rate shall be for a unit of one running metre.

ITEM NO.25:

Providing, laying and joining on true line & level U-PVC pipe (SCH-40) line incl. fitting make or equivalent as approved by engineer in charge. Pipe shall be fixed on the wall the help of clamo at every two meter C/C or shall be concealed as directed incl. necessary fitting etc. incl. testing of pipe and joints and fixing the same with adhesive solvent incl. cost of all material etc. complete.

ITEM NO.26:

Carting and Recarting of excavated earth from any site to required place as per requirement and directed by engineer in charge.

26.1.0 WORKMANSHIP

- 26.1.1 The contractor has to convey the surplus excavated stuff from the site to the place within the Municipal limit should be dumped and/or spread in such a way as not to obstruct the path of vehicles but it should also make approach to lay the earth beyond that dump. Neither any excuse for difficulties for passing the vehicle over the dumped earth shall be allowed nor any extra charge will be paid to the contractor for the same.
- 26.1.2 The conveying of earth shall be done in such a manner that it should not cause any delay in the progress of the work.
- 26.1.3 During the conveying of the earth due care should be taken that the earth should not be misused or wasted. The contractor shall have arranged to collect the mis-spread earth with his own cost.
- 26.1.4 The earth should be loaded, unloaded and spread or dumped in the presence of the Engineer-in-charge or his representative.

26.2.0 MODE OF MEASUREMENT & PAYMENT

- 26.2.1 The conveyed earth shall be measured by the measurement of the conveying vehicles. The measurement shall be recorded by the Engineer-in-charge or his representative and shall be countersigned by the contractor or his representative in token of his acceptance.

26.2.2 The rate shall be for a unit of a cubic metre.

ITEM NO.27:

Providing interlocking type Rubber moulded cement concrete paver block of approved shape, design & colour having 60mm thickness (M-35) purchased from SMC's approved paver block manufacturer only & fixing of fine sand bedding. Item includes levelling by using vibratory plates compacted machine. Item also includes all materials, labour, equipments, tools, plants, watering, cleaning etc. complete. (Without colour).

ITEM NO.28:

Removing & Refixing interlocking type cement concrete paver block (Rubber moulded) of approved shape, design & colour fixing on fine sand bedding. Item includes levelling by using vibratory plates compacted machine. Item also includes all materials, labour, equipments, tools, plants, watering, cleaning etc. complete. (M.R)

ITEM NO.29:

Provision of Traffic cones for limited period at suitable locations as per requirement during the construction in construction zone comprising of warning zone, approach transition zone, working zone and terminal transition zone Etc.

ITEM NO. 30:

Providing & Constructing ~~manhole~~ machinehole as per type & design with necessary excavation, p.c.c. in 1:4:8, benching in 1:2:4, brick masonry in C.M. 1:4, 12 mm th. inside plaster in C.M. 1:3, Prov. & fixing r.c.c. mh. frame & cover in c.c. 1:2:4, & 150 mm th.R.C.C. slab in 1:1.5:3 including Prov. fixing polypropylene Steps etc.comp.

30.1.0 GENERAL :

30.1.1 The item pertains to construction of manhole chambers of Flyash lime building brick in 1:4 cement mortar, foundation concrete 1:4:8 with coarse aggregates of trap metal of 25 mm to 40 mm size, foundation 250 mm thick, benching in 1:2:4 inside 1:3 cement mortar 12 mm thick plaster with outside flush joint and 150 mm thick R.C.C. 1:1.5:3 over slab of manhole chambers with opening as per design and drawing for fitting R.C.C. Manhole cover.

- 30.1.2 (i) The size and depth of manhole of all types shall be measured from top of M.H. cover and frame to invert level of drains (as per L-section, drawing and hydraulic design) for purpose of payment (Note : For Box drain depth of M.H. shall be measured from top of the top slab box drain.
- (ii) The item and rate also include shoring and strutting without any extra cost.
- (iii) The manhole shall be fitted with heavy duty R.C.C. manhole covers, and frame as the case may be and as directed by the Engineer-in-charge.
- (iv) The item and rate include providing fixing manhole covers with frame etc. as per the drawing and as directed. For fixing 1:2:4 concrete in trapezoidal shape shall be casted as shown in drawing.

30.2.0 MATERIALS :

30.2.1 BRICKS :

30.2.1.1 Fly ash lime brick shall be used for this item and shall comply with specification of relevant I.S. (latest version). Sample of Fly ash lime bricks shall be got approved by the Engineer, who will keep it in his office for reference. Fly ash lime Brick shall confirm to M-6A of detail specification of material.

30.2.1.2 MORTAR :

Mortar shall conform to latest relevant I.S. versions. The quantity of mortar to be used for one cubic meter of masonry shall vary from 0.24 cubic meter for this masonry to 0.26 cubic meter for massive masonry of conventional Fly ash lime brick and 0.25 cubic meter for thin

masonry to 0.27 cubic meter for massive masonry of I.S.I. bricks. The proportion of cement mortar shall be as specified in the item and special provisions of the tender.

30.3.0 POLYPROPYLENE STEPS

Polypropylene steps of approved design shall be supplied and item is including loading, unloading, carting, etc. for manhole including fixing into C.M. (1:4) etc. complete as per the drawing and as directed by the Engineer-in-charge. Spacing of steps at be 300 mm c/c, but in staggered fashion.

30.3.1 MATERIALS :

30.3.1.1 The polypropylene steps shall conform to ASTM D-4101, injection moulded around a 12 mm dia. IS-1786 grade Fe-415 steel bars. It shall be of approved quality and size shall be 300 mm x 150 mm x 25 mm and fixed in wall in staggered position as per instruction of the Engineer-in-charge. It shall be with protective cover and shall be as per approved sample in advance.

30.3.1.2 Cement Mortar : Cement shall be supplied by the Contractor. Sand or fine aggregate size 0.15 mm to 5 mm I.S. sieve No.15 to 480 confirming to relevant specification shall be supplied by the Contractor.

30.3.2 FIXING :

30.3.2.1 During the construction of masonry wall of the manhole the cement mortar of 1:4 shall be used for embedding the steps in the wall masonry. The spacing of steps in masonry shall be 300 mm. centre to centre in the staggered position in the vertical direction with two staggered rows at 385 mm centre to centre in the Horizontal direction. The top of the manhole shall be atleast 300 mm above the last step and lowest step shall not be more than 300 mm above the benching and the centre line of two benching and the centre line of two staggered rows shall be the centre line of the shorter of manhole frame in the roof of chamber.

30.3.2.2 Unchequered portion of the step shall be placed on the cement mortar 1:4 and masonry in C.M. 1:4 so constructed around the step as to keep the step on its right position. The non-slip grip chequered portion of the steps shall be well kept outside the masonry. The first step at the bottom shall be so kept so to have at least 500 mm above the top of the benching portion in the bottom of the drainage chamber. Similarly as stated earlier, the last step shall be at least 300 mm away from the top of the roof of the manhole.

30.3.2.3 Steps shall be well embedded in the cement mortar 1:4 and curing shall be done as per routine at least for seven days.

30.3.2.4 During fixing of the steps, the steps shall not be damaged, and shall not vibrate or shall not shake during ascents and descents otherwise they shall have to be refixed correctly as per the drawings or as mentioned above.

30.4.0 CEMENT CONCRETE (PLAIN AND REINFORCED) :

30.4.1 The specification item No. 4 for nominal cement concrete of specified proportion for plain and reinforced concrete works, shall be applicable.

30.4.2 Water : Water shall conform as per specification for materials.

30.4.3 Fine aggregates : Fine aggregate shall conform as per specifications for materials.

30.5.4 COARSE AGGREGATE :

30.5.4.1 Coarse aggregate shall confirm as per specifications for materials.

30.5.4.2 Size : The maximum size of coarse aggregate shall be 20 mm for reinforced concrete and 40 mm for plain cement concrete.

30.5.4.3 Generally a maximum size of 20 mm shall be found satisfactory for reinforced concrete work.

30.5.4.4 The grading between the maximum size and minimum size and minimum size shall be such as to produce a dense concrete to specified proportion and consistency that will work

readily in to the position without any aggregate and without the use of excessive water content.

30.6.0 CEMENT PLASTER (ORDINARY) :

- 30.6.1 GENERAL : This specification laid down the requirements of cement plaster to be applied on concrete, brick masonry surface in cement mortar of specified proportion and specified thickness. The work shall conform to I.S. 1661-1960.
- 30.6.2 Cement Mortar : Cement mortar shall have the proportion of cement to sand 1:3 as mentioned.
- 30.6.3 Preparatory Work : All joints in the face work that is to be plastered shall be raked out to a depth equal to not less than the width of the joints or as directed by the Engineer. The raking shall be done by taking care not to allow chipping of masonry in new work, the raking out shall be done when the mortar in the joints is still green. Smooth surface of concrete must be suitably roughed to provide necessary bond for the plaster. All dirt, soot oil, paint or any other materials that might interfere with satisfactory bond shall be removed.
- 30.6.4 Gauges : Patches of plaster 15 cm x 15 cm shall be put on about as gauges to ensure even plastering in one plane.
- 30.6.5 Plastering : In all plaster work, the mortar shall be firmly applied with same what more that the required thickness and well pressed in to the joints and on the surface and rubbed and levelled with a straight edges shall be freely used to ensure a perfectly plane and even surface. All corners shall be finished to their angles or rounded as directed by the Engineer. The surface shall be finished to plain curved surface as shown on the plan or as directed by the Engineer and shall present a neat appearance.
- 30.6.5.1 The mortar shall adhere to the masonry surface intimately when set and there should be no hollow sound when struck. Cement plastering shall be done in squares or stripes as directed, plastering shall be from top down ward.
- 30.6.5.2 Finishing in any continuous face of a wall, finishing treatment of any type shall be carried out continuously and day breaks made to coincide with architectural breaks in order to avoid unrightly junctions.
- 30.6.5.3 Moulding : All mouldings shall be worked true to template and drawn neat, clean and level. All exposed angles and junctions with door frames, etc. shall be bedded if ordered.
- 30.6.5.4 Watering : All plaster and masonry work shall be kept damp continuously for a period of 14 days. To prevent excessive evaporation on the sunny or with windward side of the work in hot, dry weather, matting or gunny bags may be hung over on the outside of the plaster in the beginning and kept moist.
- 30.6.5.5 If the contractor fails to water the work to the satisfaction of the Engineer, the latter may engage requisite labour, materials and equipment to water the work properly at the cost of the Contractor.
- 30.6.5.6 Bed Work : The mortar of the plaster peris through neglect of watering of for any default and if the work is not done as specified above, the plaster shall be removed and redone at the contractors expenses.

30.7.0 CONSTRUCTION :

- 30.7.1 As per line and level and size of the manhole, the manhole pit shall be excavated as per drawing or as ordered by the Engineer.
- 30.7.2 The foundation concrete 1:4:8 of required thickness as per drawing or as ordered shall be laid after compacting the bottom of the pit. The cement concrete shall conform to specified specifications.
- 30.7.3 The clear inside camber size of opening shall be as per the drawing or as directed by the Engineer-in-charge.
- 30.7.4 The masonry wall shall be plastered inside with 12 mm thick 1:3 cement mortar and outside with flush joint. The off set for the concrete foundation shall be 150 mm on all side beyond walls of chamber.

- 30.7.5 Whenever pipes enter or leave the masonry chamber Fly ash lime bricks on edge must be so laid around the upper half of the pipes so as to form the arch to prevent the weight of the masonry chamber over it.
- 30.7.6 On the top of masonry walls 1:1 cement mortar shall be laid and then 150 mm thick R.C.C. slab of grade 1:1.5:3 as necessary and as directed by the Engineer with coarse aggregate of trap metal 20 mm size shall be laid. Necessary form work and centering shall have to be provided by the contractor at his own cost.
- 30.7.7 The precast R.C.C. in M-200 manhole frame and cover shall be of approved quality and as per drawing. It shall be fixed as directed by the Engineer on the chamber over a trapezoidal shape concrete in CC 1:2:4.
- 30.7.8 Polypropylene Steps are also be fixed inside the manhole chamber in C.M. 1:4 and shall conform to approved sample.

30.8.0 ITEMS TO INCLUDE :

Preparing the surface to receive the plaster providing cement plaster of the specification average thickness with specified number of cost.

Dewatering when necessary, if not separately provided in the tender.

All labour, materials, use of tools and equipments to complete the plastering as per specifications curing for 14 days.

Any moulding work, if shown on the drawings or as specified unless separately provided in the tender.

30.9.0 MODE OF MEASUREMENT AND PAYMENT :

- 30.9.1 Payment shall be made on the basis as per number of masonry manhole chambers constructed with all constructing materials, labour, excavation, refilling, curing, finishing providing and fixing polypropylene steps constructing, laying half round gutter, providing and fixing R.C.C. manhole cover etc. complete in all respect. Incomplete work shall not be acceptable.
- 30.9.2 The Item will be paid per number for the depth as per item for manhole. However, if depth is more or less than specified in the item, rates of payment shall be worked out as specified in Schedule-B. However, for manhole of size 3.0 x 1.2 x 2.8 m, average depth of the manhole is considered for payment.
- 30.9.3 The measurements shall be made for such number of chambers constructed.

ITEM NO.31:

Repairing of Sewer/Storm drainage manhole shaft size 850mm x 850mm) on existing Sewer/Storm drainage lines including excavation up to 0.75 mt. depth, Dismantling of damaged manhole up to required depth(i.e frame cover,coping,brick masonry etc.)and reconstruction of the same up to 0.75 mt. depth in Brick Masonry 23 cm thick in C:M 1:4,Plaster 15 mm thick C:M 1:3 inside and out side , Coping in C:C 1:2:4 and conveying, carting & fixing of C.I/R.C.C Manhole frame cover (to be issued from any of the Municipal Store), Refilling , Curing of repaired manhole work shall be carried up to 10 days from the repairing an arrangement for to be done by contractor for protection of repaired work against traffic etc. complete.

ITEM NO.32:

Repairing of Sewer/Storm drainage manhole shaft size 1200mm x 1200mm) on existing Sewer/Storm drainage lines including excavation up to 0.75 mt. depth, Dismantling of damaged manhole up to required depth(i.e frame cover,coping,brick masonry etc.)and reconstruction of the same up to 0.75 mt. depth in Brick Masonry 23 cm thick in C:M 1:4,Plaster 15 mm thick C:M 1:3 inside and out side , Coping in C:C 1:2:4 and conveying, carting & fixing of C.I/R.C.C Manhole frame cover(to be issued from any of the Municipal Store), Refilling , Curing of repaired manhole work

shall be carried up to 10 days from the repairing an arrangement for to be done by contractor for protection of repaired work against traffic etc. complete.

- 1.0 Excavation for repairing of the manhole upto 0.75 mt. depth.
 - 2.0 Dismantalling of the damaged manhole upto 0.75 mt. (i.e. frame, cover, coping and brick masonry).
 - 3.0 All the material including cement shall be provided by the contractor. No material shall be issued by S.M.C.
 - 4.0 The manhole frame cover to be issued any of Municipal Store at free of cost to the successful contractor for repairing of manhole.
 - 5.0 The rate shall also inclusive for carting, conveying and fixing of manhole frame cover for required to be replaced.
 - 6.0 Curing of repaired manhole work shall be carried up to 10 days from the repairing an arrangement for to be done by contractor for protection of repaired work against traffic etc. complete.
 - 7.0 On completion of repairing work manhole shall be cleaned by the contractor.
 - 8.0 Protection of repairing work up to final setting against traffic. If repairing manhole is broken due to traffic within curing period, it shall be made of good by the contractor at his own cost.
- The measurements shall be made for such number of chambers construction.

ITEM NO.33:

Providing constructing brick masonry INLET CHAMBER OF 750*600*1500 mm internal dimension with necessary excavation refilling 350 mm th Br. masonry in C.M 1:4,150 mm th. p.c.c. & benching in c.c. 1:2:4,12mm th. plaster in C.M. 1:3 for inside & cement pointing in C.M. 1:3 for o/s, prov. & fixing precast RCC frame & cover of M30 grade as per drawing & specification.- Rate For 1.5 mt Depth

33.1.0 MATERIALS :

- 33.1.1 WATER : Water shall conform to M-1 of detailed specification of materials.
- 33.1.2 SAND : Fine aggregate 0.15 mm to 5.00 (about 0.00597 to 3/16") I.S. sieve No.15 to 480 shall confirm to M-4 of detailed specifications of material.

33.1.4 COARSE AGGREGATE :

- 33.1.4.1 Coarse aggregate 5 mm to 40 mm shall conform to the latest version of relevant I.S. Specification and M-8A of detailed specification of material.
- 33.1.4.2 SIZE : The maximum size of coarse aggregate shall be as large as possible normally not greater than 1/4 of the minimum thickness of concrete member. In case of R.C.C., this size present no difficulty to surround the reinforcement thoroughly and fill up the form work fully and is less than the minimum cover by 6 mm for plain concrete. Maximum size of the coarse aggregate shall be up to 40 mm subject to the above limitation and provided no limiting size is specified in the special provisions.
- 33.1.4.3 Generally a maximum size of 20 mm shall be found satisfactory for reinforced concrete work.
- 33.1.4.4 The grading between the maximum size and minimum size of 5 mm shall be such as to produce a dense concrete of specified proportion and consistency that will work readily in to position without any aggregate and without the use of excessive water content.
- 33.1.5 CEMENT MORTAR : Sand or fine aggregate size 0.15 to 5 mm I.S. Sieve No.15 to 480 confirming to relevant specification shall be supplied by the contractor and it shall be mixed with portland cement in require proportion by volume. It shall be mixed dry and then requirement quantity of water shall be added before final mixing to have thoroughly mix mortar paste. Mortar shall preferably mixed in mixer.

33.1.6 FLY ASH LIME BRICK :

- 33.1.6.1 Fly ash lime brick shall be used for this item and shall comply with specification or relevant I.S. (latest version). Sample of Fly ash lime bricks shall be got approved by the Engineer, who will keep it in his office for reference.

33.2.0 WORKMANSHIP :

- 33.2.1 The chamber of different types and sizes as specified shall constructed in storm line at such places and such levels and dimensions as shown in drawing or as directed. PCC shall be in 1:4:8 cement concrete.
- 33.2.2 Bed Concrete : The inlet chamber shall be built in bed of cement concrete 1:2:4 as shown in drawing or as directed. The relevant specification if Item No. 4 shall be followed for 1:2:4 concrete proportion by volume.
- 33.2.3 WALLS : The walls of chamber shall be constructed using Fly ash lime bricks, having crushing strength not less than 75 Kg/Sq.cm. in C.M. 1:4 (1 Cement : 4 fine sand). The Fly ash lime brick masonry shall conform to relevant specification of M-6A of detailed specification of material. The jointing face of such Fly ash lime brick shall be well buttered with cement mortar before laying so as to ensure that full joints are filled up with mortar.
- 33.2.4 PLASTER : The inside of wall shall be plastered with 12 mm thick C.M. 1:3 (1 Cement : 3 fine sand) and finished with floating coat of neat cement. All angles shall be rounded to 7.50 cms. radius and all rendered internal surfaces shall have impervious finish obtained by a steel trowel. The external joints of masonry shall be finished smooth as directed.

33.2.5 CHANNELS AND BENCHING :

- 33.2.5.1 Channels shall be semicircular in the bottom half and of diameter equal to the pipe of drain. Above the horizontal of diameter the sides shall be extended vertically to the level as the crown of the out going pipe and the top edge shall be suitably rounded off. The branch channels shall also be similarly constructed with respect to the benching but at their junction with the main channel with appropriate fall, suitably rounded off in the direction of flow in the main channel, shall be given.
- 33.2.5.2 The channel and benching shall be done in 1:2:4 grade rising at a slope in line from edges of channel. The channels of the bottom of the chamber shall be plastered with C.M. 1:2 (1 Cement; 2 coarse sand) and trowelled smooth.
- 33.2.6 FRAME FITTING : Perforated Precast R.C.C. Jali in CC M-30 as per drawing shall be fitted firmly in the precast frame which shall be laid over plaster on top of masonry. Cement mortar shall be 1 part cement and 2 parts of sand and layer shall be 25 mm thick.

33.2.7 TESTING :

- 33.2.7.1 Chamber shall be tested by filling with water upto top as directed.
- 33.2.7.2 After completion of work, chamber covers shall be sealed by means of thick grease.

33.3.0 MODE OF MEASUREMENTS AND PAYMENTS :

- 33.3.1 The rate includes all labours, materials, curing for 14 days, tools and plant, etc. required for satisfactory completion of this item as per drawing and as directed by the Engineer-in-charge.
- 33.3.2 The rate shall be for a unit of one chamber including RCC cover with frame.

ITEM NO.34:

Repairing of storm drainage Inlet chamber size 600mmx750mm) on existing storm drainage lines including excavation up to 0.75 mt. depth, Dismantling of damaged inlet chamber up to required depth (i.e. frame cover, coping, brick masonry etc) and reconstruction of the same up to 0.75 mt. depth in brick masonry 35 cm thick in C:M: 1:4, Plaster 12mm thick C:M inside, coping in C:C 1:2:4 and conveying, carting & fixing of C.I./R.C.C. Precast inlet frame cover (to be issued from any of the Municipal Store) Refilling, curing of repaired inlet Chamber work shall be carried up to 10 days from the repairing an arrangement for to be done by contractor for protection of repaired work against traffic etc. complete.

Same as per Item Description and as directed by Engineer-in-charge.

MODE OF MEASUREMENTS AND PAYMENTS :

Item includes all internal, labour plant and tools required for it.

Rate shall be for a unit of Nos.

ITEM NO.35:

Providing and Fixing RCC precast inlet chamber cover of M-30 Grade as per drawing and specification.

ITEM NO.36:

Providing and Fixing RCC precast inlet chamber frame of M- 30 Grade as per drawing and specification.

Signature Of The Contractor.

Executive Engineer
New East (Sarhana) Zone
Surat Municipal Corporation

16.0 IMPORTANT INSTRUCTION TO TENDERER

NAME OF WORK:- Repairing, Maintenance and Extension of Drainage/Storm Drainage line including construction of Drainage/Storm Drainage machineholes, Storm Inlet Chambers where required in various TP Roads of Sarthana, Valak, Bhada and Laskana in New East (Sarthana) Zone, Surat Municipal Corporation.

1.

Affix Latest Passport Size Photo of tenderer

Specimen Signature of the Bidder.

[2] AFFIX LATEST PASSPORT SIZE PHOTOGRAPH OF ALL PARTNERS IN CASE OF PARTNERSHIP AGENCY.

1	2	3	4
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Specimen Signature of all partners incase of partnership agency.

1. _____

2. _____

3. _____

4. _____

Submission of Registered Agreement is compulsory in case of partnership agency.

- Submission of income tax clearance certificate of last three years is compulsory for tenderer submitting agency.
- Submission of sale tax certificate, with proof of residence is compulsory for tenderer.
- In case of Government royalty applicable to tenderer, it is compulsory to submit a receipt of royalty payment with tender.
- The Photograph and specimen signature of contractor will be cross checked, whenever contractor receives payment in account section of SMC.
- The specimen signature of contractor will be cross checked by Account Department of SMC, in case of representative of Contractor alongwith letter of authority of a person who signed an agreement, receives payment.
- In case of octroi applicable to the goods of supplier/tenderer, the tenderer/supplier has to submit an attested copies of Xerox of all octroi receipts.
- All partners of tenderer should put their specimen signature at the relevant places in the tender. A Passport size photograph of all partners who have signed the tender shall be affixed in the tender. The successful tenderer shall be required to execute necessary agreement where in the same partners shall put on their signatures.

Executive Engineer
New East (Sarthana) Zone
Surat Municipal Corporation

Signature Of The Contractor.

17.0 DRAWINGS