

GOVERNMENT OF MADHYA PRDESH

UJJAIN MUNICIPAL CORPORATION

E-Tender Notice No:



**Chhatrapati Shivaji Bhavan,
Fatak, Agar Road, Ujjain, Madhya Pradesh**

Phone: +91 734 2535244

Web site: www.UMCujjain.org

Email: commujjain@mpurban.gov.in, eephenpnujjain@gmail.com

Name of work:

**Construction of Proposed Water Supply and Sewerage Network of Block
1A & 1B (Package 4) at Ujjain Simhast 2028 area**

BID DOCUMENT

09- June – 2026



GOVERNMENT OF MADHYA PRDESH

UJJAIN MUNICIPAL CORPORATION

APPENDIX 2.10

TENDER DOCUMENT

For Percentage Rate only in Works Departments and other Departments similar to Works Departments

Office of the	Ujjain Municipal Corporation
N.I.T. No.& Date	2026_UAD_514264_1 date 09-06-2026
Agreement No. and Date	
Name of Work	Construction of Proposed Water Supply and Sewerage Network of Block 1A & 1B (Package 4) at Ujjain Simhast 2028 area
Name of Contractor	
Probable Amount of Contract (Rs. <i>In Figures & In Words</i>)	Rs. 1,30,98,27,000 (Rupees One Hundred and Thirty Crores Ninety-Eight Lakhs Twenty-Seven Thousand only)
Amount of Contract (Rs. <i>In Figures & In Words</i>)	
Stipulated Period of Completion	12 months (including monsoon season)



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SECTION – 1

Notice Inviting Tender

GOVERNMENT OF MADHYA PRDESH
UJJAIN MUNICIPAL CORPORATION

NIT. No. 2026_UAD_514264_1

Dated – 09-06-2026

Online percentage rate bids for the following works are invited from registered contractors and Firms of repute fulfilling registration criteria:

Sr. No. /Pkg/ Code	Name of Work	District(s)	Probable Amount of Contract (Rs. in Crores)	Period of Completion
1	Construction of Proposed Water Supply and Sewerage Network of Block 1A & 1B (Package 4) at Ujjain Simhast 2028 area	Ujjain	Rs. 1,30,98,27,000	12 months (including monsoon season)

- Interested bidders can view the detailed NIT on the website <https://mptenders.gov.in>.
- The Bid Document can be purchased only online from 09-06-2026 at 17:30 Hrs to 10-07-2026 up to 17:30 Hrs.
- Amendments to NIT, if any, would be published on website only, and not in newspaper.

Executive Engineer
Ujjain Municipal Corporation
Ujjain



Notice Inviting Tender

GOVERNMENT OF MADHYA PRDESH UJJAIN MUNICIPAL CORPORATION FIRST CALL

NIT. No. 2026_UAD_514264_1

Dated – 09-06-2026

Online percentage rate bids for the following works are invited from registered contractors and Firms of repute fulfilling registration criteria:

Sr. No. /Pkg/ Code	Name of Work	District(s)	Probable Amount of Contract (Rs. in Crores)	Earnest Money Deposit (EMD) (In Rs.)	Cost of Bid Document	Period of Completion
1	2	3	4	5	6	8
1	Construction of Proposed Water Supply and Sewerage Network of Block 1A & 1B (Package 4) at Ujjain Simhast 2028 area	Ujjain	Rs. 1,30,98,27,000	Rs.,50,00,000	Rs. 50,000/-	12 months (including monsoon season)

- All details relating to the Bid Document(s) can be viewed and downloaded free of cost on the website - <https://mptenders.gov.in>
- Bid Document can be purchased after making online payment of portal fees.
- At the time of submission of the Bid the eligible bidder shall be required to:
 - pay the cost of Bid Document,
 - deposit the Earnest Money,
 - submit a check list and
 - submit an affidavit.

Details can be seen in the Bid Data Sheet. The above details are to be Submitted online only.

4. Eligibility for Bidders:

- At the time of submission of the Bid the bidder should have valid registration with the Government of Madhya Pradesh, PWD (MPPWD). However, such bidders who are not registered with the Government of Madhya Pradesh and are eligible for registration can also submit their bids after having applied for registration with appropriate authority MPPWD.
- The bidder would be required to have valid registration at the time of signing of the Contract.



- c. Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.
5. **Pre-qualification:** Prequalification conditions, wherever applicable, are given in the Bid Data Sheet.
6. **Special Eligibility:** Special eligibility conditions, if any, are given in the Bid Data Sheet.
7. **Pre-Bid meeting:** A pre bid meeting will be held at UMC Meeting Hall at 19.06.2026 at 14:00 to 15:00 Hrs.
8. The Bid Document can be purchased only from 09-06-2026 at 17:30 Hrs to 10-07-2026 up to 17:30 Hrs.
9. Amendments to NIT, if any, would be published on website only, and not in newspaper.

**Executive Engineer
Ujjain Municipal Corporation
Ujjain**



SECTION – 2

Instructions to Bidders (ITB)

A. GENERAL

1. Scope of Bid:

The detailed description of work, hereinafter referred to as “work” is given in the Bid Data Sheet.

2. General Quality of Work:

The work shall have to be executed in accordance with the technical specifications specified in the Bid Data Sheet / Contract Data and shall have to meet highest standards of workmanship, safety and security of workmen and works.

3. Procedure for participation in E-tendering:

The procedure for participation in e-tendering is given in the Bid Data Sheet.

4. One Bid per Bidder:

- i. The Bidder can be an individual entity or a joint venture. The requirement of joint venture is given in the Bid Data Sheet.
- ii. No bidder shall be entitled to submit more than one bid whether jointly or severally. If he does so, all bids wherein the bidder has participated shall stand disqualified.

5. Cost of Bidding:

The bidder shall bear all costs associated with the preparation and submission of his bid, and no claim whatsoever for the same shall lie on the Government.

6. Site Visit and Examination of Works:

The bidder is advised to visit and inspect the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering a contract for construction of the work. All costs in this respect shall have to be borne by the bidder.

B. BID DOCUMENTS

7. Content of Bid Documents:

The bid document shall comprise of the following documents:

- a) NIT with all amendments
- b) Instructions to Bidders, bid data sheet with all Annexure
- c) Conditions of Contract:
 - i. Part I – General Conditions of Contract and Contract Data with all Annexures and
 - ii. Part II – Special Conditions of Contract.



- d) Specifications
 - e) Drawings.
 - f) Priced Bill of Quantities
 - g) Technical and Financial Bid
 - h) Letter of Acceptance
 - i) Agreement and
 - j) Any other Document(s), as specified.
8. The bidder is expected to examine carefully all instructions, conditions of contract, the contract data, forms, terms and specifications, bill of quantities, forms and drawings in the Bid Document. Bidder shall be solely responsible for his failure to do so.

9. Pre-Bid Meeting (wherever applicable)

Wherever the Bid Data Sheet provides for pre-bid meeting:

- 9.1 Details of venue, date and time would be mentioned in the Bid Data Sheet. Any change in the schedule of pre-bid meeting would be communicated on the website only, and intimation to bidders would not be given separately.
- 9.2 Any prospective bidder may raise his queries and/or seek clarifications in writing before or during the pre-bid meeting. The purpose of such meeting is to clarify issues and answer questions on any matter that may be raised at that stage. The Employer may, at his option, give such clarifications as are felt necessary.
- 9.3 Minutes of the pre-bid meeting including the list of the questions raised and the responses given together with any response prepared after the meeting will be hosted on the website.
- 9.4 Pursuant to the pre-bid meeting if the Employer deems it necessary to amend the Bid Document, it shall be done by issuing amendment to the online NIT.

10. Amendment of Bid Documents

- 10.1 Before the deadline for submission of bids, the Employer may amend or modify the Bid Documents by publication of the same on the website.
- 10.2 All amendments shall form part of the Bid Document.
- 10.3 The Employer may, at its discretion, extend the last date for submission of bids by publication of the same on the website.

C. PREPARATION OF BID

11. The bidders must submit their bids online as per guidelines given in the portal.

12. Documents comprising the Bid

The bid submitted online by the bidder shall be in the following parts:

Part 1 – This shall be known as **Envelope A** and would apply for all bids online.



Envelop A – shall contain the following as per details given in the Bid Data Sheet:

- i) Registration number or proof of application for registration and organizational details in format given in the bid data sheet.
- ii) Payment of the cost of Bid Document.
- iii) Earnest Money; and
- iv) An affidavit duly notarized.

The above details are to be submitted online only.

Part 2 – This shall be known as online **Envelope B** and is required to be submitted only in works where pre-qualification conditions and/or special eligibility conditions are stipulated in the Bid Data Sheet. Online **Envelope B** shall contain a *self-certified sheet* duly supported by documents to demonstrate fulfilment of pre-qualification conditions.

Part 3 – This shall be known as online **Envelope C** and would apply to all bids. **Envelope C** shall contain financial offer in the format prescribed format enclosed with the Bid Data Sheet.

13. Language

The bid as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer shall be in either English or Hindi. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English. In such case, for the purposes of interpretation of the bid, such translation shall govern.

14. Technical Proposal

- i. Only, in case of bids with pre-qualification conditions defined in the Bid Data Sheet, the Technical Proposal shall comprise of formats and requirements given in the Bid Data Sheet.
- ii. All the document/information enclosed with the technical proposal should be self-attested and certified by bidder. The bidder shall be liable for forfeiture of his earnest money deposit, if any document/information are found false/fake/untrue before acceptance of bid. If it is found after acceptance of the bid, the bid sanctioning authority may at his description forfeit his performance security/guarantee security deposit, enlistment deposit and take any other suitable action.

15. Financial Bid

- i. The bidder shall have to quote rates in format referred in bid data sheet, in overall percentage, and not item wise. If the bid is in absolute amount, overall percentage



would be arrived at in relation to the probable amount of contact given in NIT. The overall percentage rate would apply for all items of work.

- ii. Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found, lower of the two shall be taken as valid and correct.
- iii. The bidder shall have to quote rates inclusive of all duties, taxes, royalties and other levies; and the Employer shall not be liable for the same.
- iv. The material along with the units and rates, which shall be issued, if any, by the department to the contractor, is mentioned in the bid data sheet.

16. Period of Validity of Bids

The bids shall remain valid for a period specified in the Bid Data Sheet after the date of “close for bidding” as prescribed by the Employer. The validity of the bid can be extended by mutual consent in writing.

17. Earnest Money Deposit

- i. The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), in the amount specified in the Bid Data Sheet.
- ii. The EMD shall be in the form of Fixed Deposit Receipt of a scheduled commercial bank, issued in favour of the name given in the Bid Data Sheet. The Fixed Deposit Receipt shall be valid for six months or more after the last date of receipt of bids. However other form(s) of EMD may be allowed by the employer by mentioning it in the bid data sheet.
- iii. Bid not accompanied by EMD shall be liable for rejection as non-responsive.
- iv. EMD of bidders whose bids are not accepted will be returned after the decision on the bid.
- v. EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement after furnishing the required Performance Security.
- vi. Failure to sign the contract by the selected bidder, within the specified period, for whatsoever reason, shall result in forfeiture of the earnest money deposit.

D. SUBMISSION OF BID

18. The bidder is required to submit online bid duly signed digitally.

E. OPENING AND EVALUATION OF BID

19. Procedure

- i. Envelope A shall be opened first online at the time and date notified and its contents shall be checked. In cases where Envelop A does not contain all requisite documents, such bid shall be treated as non-responsive and Envelop B and/or C of such bid shall not be opened.



- ii. Wherever Envelop B (Technical Bid) is required to be submitted, the same shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Envelop B. Envelop C (Financial Bid) of bidders who are not qualified in Technical Bid (Envelop B) shall not be opened.
- iii. Envelope C (Financial Bid) of bids shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Envelop C.
- iv. After opening Envelop C all responsive bids shall be compared to determine the lowest evaluated bid.
- v. The Employer reserves the right to accept or reject any bid, and to annul the bidding process and reject all the bids at any time prior to contract award, without incurring any liability. In all such cases reasons shall be recorded.
- vi. The Employer reserves the right of accepting the bid for the whole work or for a distinct part of it.

20. Confidentiality

- i. Information relating to examination, evaluation, comparison and recommendation of contract award shall not be disclosed to bidders or any other person not officially concerned with such process until final decision on the bid.
- ii. Any attempt by a bidder to influence the Employer in the evaluation of the bids or contract award decisions may result in the rejection of its bid.

F. AWARD OF CONTRACT

21. Award of Contract

The Employer shall notify the successful bidder by issuing a “Letter of Acceptance” (LOA) that his bid has been accepted.

22. Performance Security

- i. Prior to signing of the contract, the bidder to whom LOA has been issued shall have to furnish performance security of the amount, in the form and for the duration, etc. as specified in the Bid Data Sheet.
- ii. Additional performance security, if applicable, is mentioned in the Bid Data Sheet and shall be in the form and for the duration, etc. similar to performance security.

23. Signing of Contract Agreement

- i. The successful bidder shall have to furnish Performance security and additional performance security, if any and sign the contract agreement within 15 days of issue of LOA.
- ii. The signing of contract agreement shall be reckoned as intimation to commencement of work. No separate work order shall be issued by the Employer to the contractor for commencement of work.



- iii. In the vent of failure of the successful bidder to submit Performance Security and additional performance security, if any or sign the Contract Agreement, his EMD shall stand forfeited without prejudice to the right of the employer for acting against the bidder.

24. Corrupt Practices

The Employer requires that bidders observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, the Employer:

- i. may reject the bid for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract; and
- ii. may debar the bidder declaring ineligible, either indefinitely or for a stated period, to participate in bids, if it at any time determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, a contract.

For the purposes of this provision, the terms set forth above are defined as follows:

- a. “corrupt practice” means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party.
- b. “fraudulent practice” means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation.
- c. “coercive practice” means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party.
- d. “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

[End of ITB]

**BID DATA SHEET**

GENERAL		
SR. No.	PARTICULARS	DATA
1	Office Inviting Tender	Ujjain Municipal Corporation, Ujjain
2	NIT No.	2026_UAD_514264_1
3	Date of NIT	09-06-2026
4	Bid document download available from date & time	Date 09-06-2026 Time 17:30
5	Website link	http:// www.mptenders.gov.in
SECTION 1 – NIT		
NIT CLAUSE	PARTICULARS	DATA
1	Key Dates	As per 'Annexure -A'
2	Portal Fees (also known as processing fee)	As notified on E-tendering website
3	Cost of Bid Document	Rs. 50,000/-
	Cost of Bid Document Payable At	Online on portal using options available on portal
	Cost of Bid Document in favor Of	Commissioner, Ujjain Municipal Corporation, Ujjain
4	Affidavit Format	As per 'Annexure- B'
5	Pre-qualifications required	Yes
	If yes, details	As per 'Annexure- C'
6	Special Eligibility	No
	If yes, details	As per 'Annexure-D'
7	Key dates	As per 'Annexure-A'

**BID DATA SHEET**

SECTION 2 – ITB		
ITB CLAUSE	PARTICULARS	DATA
1	Name of the Work	Construction of Proposed Water Supply and Sewerage Network of Block 1A & 1B (Package 4) at Ujjain Simhast 2028 area
2	Specifications & SOR	As per 'Annexure – E' in addition to as below: a) In case of Roads and Bridge works: 'Specification for Road and Bridge Work (5 th Revision) by MoRTH. b) Stipulation of SOR for Road & Bridge w.e.f. 11-04-2025 and its amendments issued up to the date of NIT. c) Stipulation of SOR for Building work w.e.f. 01.01.2024 and its amendments issued up to date of NIT. d) UDHD Integrated Standard SOR Vol. – I Water Supply, Sewerage and Tube Well Works w.e.f. 02.08.2021 with all latest amendment.
3	Procedure for participation in e-tendering	As per 'Annexure – F'
4	Whether Joint Venture is allowed.	No
	If yes, requirement for Joint Venture	As per 'Annexure – G'
12	Envelope-A containing: a) Organizational details as per 'Annexure H' b) Cost of Bid Document c) EMD d) An affidavit duly notarized as per	Submission online only



	'Annexure- B.'	
14	Envelope-B – Technical Proposal	As per 'Annexure – C' and 'Annexure – I' (Format I-1 to I-9) Note: The technical evaluation will be done based on the details submitted under Annexure – C i.e. Eligibility Criteria, Qualification Criteria and the information provided by the bidder as per Annexure – I-1 to I-9 in prescribed formats. Requirements with regard to firm related information, bid capacity, summary and detailed information of similar projects in last 5 years, quantities executed in that duration, information of key technical personnel, key construction and lab equipment, litigation history, MoU with specialized agencies shall deemed to be a part of technical evaluation. However, non-compliance on these requirements may lead to disqualification.
15	Envelope-C – Financial Bid	As per 'Annexure – J' (online only)
	Materials to be issued by the department	As per 'Annexure - K'
16	Period of Validity of Bid	180 Days
17	Earnest Money Deposit	Rs. 50,00,000/-
	Forms of Earnest Money Deposit	e-EMD (RTGS/NEFT) online only
	EMD Valid for a period of	6 months or more
	FDR must be drawn in the favor of	As per Portal

21	Letter of Acceptance (LOA)	As per 'Annexure – L' (A formal work order on request of contractor may be issued.)
22	Amount of Performance Security	Performance Security to be deposited @ 3 (Three)% of the value of the



		contract and For O&M - 10% of O&M amount
	Additional Performance Security, if any	Additional Performance Security to be deposited @ equal to If the rates below 10% and up to 20% value equal to the percentage below 10% of probable amount of contract (PAC). If rates are below 20% - as per (a) and twice the value below 20% of probable amount of contract (PAC). valid up to – till stipulated time of completion plus three months.
	Performance Security in the format	As per 'Annexure- M-1'
	Performance Security in favor of	Commissioner, Ujjain Municipal Corporation, Ujjain, Madhya Pradesh (Telephone: 0734-2535244; e-mail: commujjain@mpurban.gov.in , eephenpnujjain@gmail.com)
	Performance Security valid up to	As provided in the Contract Data (Amended vide Govt. memo No. 1400/1246/2018/19/Yo Ujjain dt. 06-04-18)

**Annexure – A**

(See Clause 1, 7 of Section 1 – NIT)

Key Dates - As provided in the portal (<https://mptenders.gov.in>)**Key Dates**

Sr. No.	Particulars	Date	Time
1	Publishing Date	09-06-2026	17:30
2	Document Download/Sale Start Date	09-06-2026	17:30
3	Seek Clarification Start Date		-
4	Seek Clarification End Date		-
5	Pre-Bid Meeting Date	19.06.2026	13:00
6	Bid Submission Start Date	09-06-2026	17:30
7	Bid Submission Closing Date	10-07-2026	17:30
8	Bid Opening Date	11-07-2026	17:35

EMD and all other document submissions shall be done online only.

Executive Engineer
Ujjain Municipal Corporation
Ujjain



Annexure – B
(see Clause-3 of Section 1 – NIT)

|| AFFIDAVIT ||

(to be Contained in Envelope-A)
(On Non Judicial Stamp of Rs. 200)

I/we _____ who is/ are _____
(status in the firm/ company) and competent for submission of the
affidavit on behalf of M/S _____ (contractor) do solemnly affirm an oath and state
that:

I/we am/are fully satisfied for the correctness of the certificates/records submitted in support of the
following information in bid documents which are being submitted in response to notice inviting
e-tender No. _____ for _____ (name of work) dated _____
issued by the _____ (name of the department).

I/we are fully responsible for the correctness of following self certified information/
documents and certificates:

1. That the self certified information given in the bid document is fully true and authentic.
2. That:
 - a. Term deposit receipt deposited as earnest money, demand draft for cost of bid document and other relevant documents provided by the Bank are authentic.
 - b. Information regarding financial qualification and annual turn-over is correct.
 - c. Information regarding various Technical qualifications is correct.
3. No close relative of the undersigned and our firm/company is working in the department.

OR

Following close relatives are working in the department:

Name _____ Post _____ Present Posting _____

Signature with Seal of the Deponent (bidder)

I/ We, _____ above deponent do hereby certify that the facts mentioned in
above paras 1 to 4 are correct to the best of my knowledge and belief. in the event of any information is
found to incorrect / untrue or found violated then without prejudice to any other right of remedy including
the forfeiture of the bid security / performance security.

Verified Today _____ (dated) at _____ (place).

Signature with Seal of the Deponent (bidder)

Note: Affidavit duly notarized in original shall reach at least one Calendar day before opening of the bid.

**Annexure – C**

(See Clause 5 of Section 1 – NIT)

PREQUALIFICATION CRITERIA

To be eligible for the financial evaluation, the bidder must fulfil all the Qualification Criteria below:

A. ELIGIBILITY CRITERIA

Sr. No.	Criteria	Documents to be submitted
1	The Bidder should have been involved in Wet Infrastructure Works for Water Supply & Sewerage Disposal Networks for the last five years or more (ending on 31st March 2026).	Company / Partnership registration certificate (Incorporation Certificate).
2	(a) At the time of submission of the bid, the bidder should have valid registration with the Government of Madhya Pradesh, PWD. However, such bidders who are not registered with the Government of Madhya Pradesh and are eligible for registration can also submit their bids after having applied for registration with appropriate authority. However, such bidders who are not registered with the Government of Madhya Pradesh and are registered with Central Government, other State Governments, PSUs are also eligible for submission of Bids. (b) The bidder shall be required to have valid registration with MPPWD at the time of signing of the Contract. (c) Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.	Copy of Certificate to be submitted with self-attestation
3	Valid solvency certificate (current calendar year) from a nationalised bank or government-approved scheduled bank amounting to not less than 30% of the probable amount of contract excluding taxes.	Copy of Certificate to be submitted with self-attestation.



4	The Bidder should have had average annual turnover (of only construction works) of not less than 50% of Probable Amount of Contract - excluding taxes in the last five financial years.	• Details as per Form I-2 • Copy of certificate from Chartered Accountant along with copy of Balance sheets.
5	The Bidder should demonstrate positive net worth of minimum 30% of the probable amount of contract excluding taxes.	• Certificate from Chartered account / statutory auditors specifying net worth of the applicant, as at the close preceding financial year, and also specifying that the methodology adopted for calculating such net worth confirms to the provision of this clause. For the purpose of this prequalification, "Net Worth" shall mean the sum of capital (paid up capital in case of companies) and reserves from which shall be deducted the sum of revaluation reserves, miscellaneous expenditure not written off and reserves not available for distribution to equity shareholders (in case of companies)
6	The Bidder should have a minimum Bid capacity of 100% of probable amount of contract excluding taxes.	• Copy of bid capacity calculation sheet as prescribed in I-3 form as certified by Chartered Accountant / Statutory Auditors
7	The Bidder should not have been Blacklisted during this bidding stage with Government, Semi Government, Boards and Corporation. The Bidder should provide information on any history or arbitration resulting from contracts in last five year or currently under execution.	• The applicant must submit a notarised affidavit to this effect. • Details as per Form I-7



B. QUALIFICATION CRITERIA

Sr. No.	Criteria	Documents to be submitted
Experience of Similar completed project work		
8	The Bidder should have successfully completed at least: One similar project as a prime contractor, of a minimum value of 50% of the probable amount of contract excluding taxes in last 5 years OR Two similar projects as a prime contractor, of a minimum value of 30% of the probable amount of contract excluding taxes in last 5 years OR Three similar projects as a prime contractor, of a minimum value of 20% of the probable amount of contract excluding taxes in last 5 years Whereas the "similar project / work" means successfully completed wet infrastructure / underground utility works for water supply and/or sewerage network in villages, town or city level projects or such services along state / national highways under government, semi-government, or institutional bodies as a prime contractor under a single work order. Note: Infrastructure / underground utility works of water supply and/or sewerage network executed for plot level or for buildings shall not be considered under similar project/work definition.	• Copy of Work Order issued by the client to the contractor. • Copy of Final Completion Certificate issued by the client to contractor. • ~~Photographs Evidence of Client / 3rd party audits for Quality assurance system.~~ • Form I-4 & I-4a NOTE: A copy of certificate issued by the Consultant/PMC will not be considered for evaluation. ~~Bidder must submit photographs of the following elements of the similar completed project/s to assess the level of workmanship:~~


Firm's Experience in executing special elements works

9	The bidder should have completed pipe laying works for minimum 30% of total length of proposed water supply network , as a prime contractor in any one completed project during last 5 years.	• Details as per form I-5 • Copy of Work Order issued by the client to contractor. • Copy of Final Completion Certificate issued by the client to contractor.
10	The bidder should have completed pipe laying works for minimum 30% of total length of proposed sewerage network , as a prime contractor in any one completed project during last 5 years.	• Details as per form I-5 • Copy of Work Order issued by the client to contractor. • Copy of Final Completion Certificate issued by the client to contractor.

Refer Annexure – I (Format I-1 to I-9) for bid qualification related information to be provided by the Bidder in **Envelope – B**



Annexure – D

(See Clause 5 of Section 1 – NIT)

~~SPECIAL ELIGIBILITY CRITERIA~~

~~The bidder should have experience of:~~

~~A. — Erection of Steel Gates~~

~~B. — Construction of tunnel~~

~~Note: Above criteria are indicative, subject to suitable stipulations by the departments and specific bid.~~

**Annexure – E**

(See Clause 2 of Section 2 – ITB and Clause 10 of GCC)

TECHNICAL SPECIFICATIONS**CIVIL WORKS****General**

The specifications to be followed for this work are the specification for water supply network and sewerage disposal network as published by the CPHEEO, for the relevant Items. This specification shall be supplemented by the technical specification provided for water supply network and sewerage disposal network as given here under in this document, and the relevant provisions of other applicable codes and standards (MORTH, IRC & IS codes).

Order of precedence for referring documents to resolve queries:

- i Description of Schedule of quantities.
- ii Architectural drawings.
- iii Additional Specifications
- iv Special Conditions of Contract
- v General Conditions of Contract
- vi MP UDHD - Water Supply, Sewerage & Tube Well Works - Vol 1, MPPWD (Road and Bridge, Building works), CPHEEO Manual, MoRTH, IRC, and CPWD Specifications
- vii Indian Standard Specifications / BIS.
- viii Sound engineering practice.

All work shall be carried out in confirmation with the above specifications. These specifications broadly cover all major aspects of the work involved. Minor details may not be specified here; however, if these are necessary for completion of work, the contractor shall execute such minor items without any additions to the costs. All work shall be executed in accordance with good engineering practices.

In case of dispute for unseen or overlooked items, the decision of the Engineer in charge shall be final. The Contractor shall have to give site clean of all rubbish on completion of work and hand over the site with final finishing as directed. All the rejected materials shall be removed from site within 24 hours by the Contractor at his risk and cost.



The Contractor will be fully responsible for compliance of the various provisions under the Contract Labour Act, 1970, and the Rules framed thereunder.

The Contractor is directed to procure their quarry materials required for construction work through legal sources, i.e., only from the quarry lease holders, permit holders, or middleman who satisfies the contractor as to the legality of the source of purchase by him of these materials.

Details

Work shall be executed as per the BOQ item, notes and the technical specifications as given under this document for water supply network and sewerage disposal network. The manufacturer's prescribed method of application or the latest CPHEEO/MoRTH/CPWD specifications or BIS standards/guidelines, as approved by the Engineer-in-charge, shall be adopted where technical specifications are not available.

The work shall be executed in accordance with best modern practices & all latest codes and standards referred to in these specifications shall be read in conjunction with the various other documents forming the contract, tender specifications, BOQ, contract drawings, and other related documents.

In case of contradictory specification between Item description and technical specifications, the decision of Engineer-in-charge regarding the same shall be final and binding on the contractor.

Procurement of items with aesthetic value and visibility shall be done only after a prior approval of the Principal Architect for specific area of application.

Measurement and payments

a) The methods of measurement and payment shall be as described under the technical specifications of the various items and in the Price Bid. Where specific definitions are not given, the methods described in CPHEEO/MORTH/CPWD will be followed. Should there be any detail of construction of materials which has not been referred to in the specifications or in Price Bid and drawings but the necessity for which may be implied or inferred there from, or which are usual or essential for the completion of the work in the trades, the same shall be deemed to be included in the rates quoted by the contractor in Price Bid.

b) Unacceptable work

All defective works are liable to be demolished, rebuilt, and defective materials replaced by the contractor at his own cost. In the event of such works being



accepted by carrying out repairs etc. as specified by the engineer in charge, the cost of repairs will be borne by the contractor and will be paid for the works actually carried out by him at reduced rates of the tendered rates, as may be considered reasonable by the engineer in charge, in the preparation of final or on account bills.

SPECIFICATION FOR CIVIL WORKS

- 1) The method of excavation shall be approved by the Engineer in charge before execution.
- 2) Excavation shall be carried out very carefully without damaging existing structures and surrounding if any.
- 3) If required, the contractor shall provide stabilization by any means to protect the foundation of the existing structure and building without any extra cost.
- 4) Rate shall include dewatering work (pumping out and removing slush) while execution in underwater condition if required unless otherwise specified.
- 5) Contractor shall conduct underground utility survey mapping by executing required number of trial pits or by any other suitable means before executing the work as per direction by the engineer in charge.
- 6) For concrete work, rate shall be inclusive of providing and laying in position machine-batched, machine-mixed PCC/RCC of specified grade, including compaction, vibration, curing, transporting, finishing, and pumping, tremie for pouring, dewatering (if required), formwork / shuttering etc. complete for all levels, all heights/depths, and for all lead and lift and as directed by the Engineer-in-charge.
- 7) All types of shuttering shall be designed by the contractor and submitted to the Engineer in charge along with design calculations (if required) and approved by the Engineer in charge. However, the Stability and compatibility of shuttering shall be the responsibility of the contractor. Shuttering shall be executed as per the approved shop drawing. No extra payment shall be made for the above.
- 8) Rate shall be inclusive of dewatering work (pumping out and removing slush) while execution in underwater conditions. The contractor shall not claim for dewatering if required unless otherwise anywhere specified as per the directions of Engineer-in-charge.
- 9) Rate shall be inclusive of providing grooves, drip moulds, pockets, cut-outs, etc., and co-ordination of insert sleeves, insert plate (cost of insert sleeves/ plate shall be paid separately), encasing if any wherever required while casting for all level all height.



List of Approved Makelist for Civil Works

Sr. No.	Material / Item	Make
1	Cement OPC/ PPC	UltraTech, Ambuja, JK Cement, Wonder Cement, ACC
2	Admixture for Concrete, Concrete Curing Compound	Fosroc, Mapei, MYK Arment, CAC
3	Reinforcement Steel: Main Producers only	TATA (TISCO), RINL, JSPL
4	Ready Mix Cement Concrete	Ultratech, ACC or as approved by Engineer-in-charge
5	Filler board	Supreme, STP
6	Polysulphide Sealant/ PU sealant	Fosroc, Sika, Mapei, MYK Arment, Pidilite, STP
7	Paint - Acrylic Emulsion (Exterior)	Asian Paints, Akzo Nobel (Dulux), Jotun, Berger, Nerolac
8	Structure Steel & Hollow Section - Producers only	TATA (TISCO), RINL, Jindal Steel & Power (JSPL), APL Apollo tube, JSW
9	Steel (MS) rolled section & plate	TATA, Jindal, RINL
10	Paint - PU & epoxy paint	Asian, Berger, Jotun, MRF, Akzonobel
11	Anchor Fastener, Rebar, Chemical/Mechanical fastener, Expandable fasteners	Hilti, Fischer, Wuerth

NOTE:

- i All materials and products shall conform to the relevant standards (IS, EN, BS, ASTM, ISO, AS/NZS) and shall be of approved make and design.
- ii The Architect shall give the approval of a manufacturer only after a review of the sample/ mock-up. In case the same is not available in the market or in case of a change in trade name, equivalent makes/ re-designated manufacturer, then an equivalent approved make shall be used with the approval of the Architect. The complete system and installation shall also be in conformity with applicable Codes & Standards and Tender specifications.
- iii Architect and Engineer-in-charge reserves the right to choose any of the approved as per this list.
- iv In case of products not indicated in this list, the name of the manufacturer shall be given by the Engineer-in-charge.



TECHNICAL SPECIFICATIONS

WATER SUPPLY NETWORK

Item No. 1

Providing, laying, jointing & testing of socket & spigot centrifugally cast (Spun) **Ductile Iron pressure pipes** with inside cement mortar lining (class K-7) with suitable Rubber Gasket (Push on) joints as per IS:5382/85 including testing of joint.

- (i) 100 mm dia.
- (ii) 150 mm dia.
- (iii) 200 mm dia.
- (iv) 250 mm dia.
- (v) 300 mm dia.
- (vi) 350 mm dia.
- (vii) 400 mm dia.
- (viii) 450 mm dia.
- (ix) 500 mm dia.
- (x) 600 mm dia.
- (xi) 700 mm dia.

General: The specification pertains to Ductile Iron (DI) Spigot and Socket Spun Pipes suitable for jointing with rubber gaskets, with ISI marking and in standard lengths of the classes mentioned in the Bill of Quantities. The pipes shall conform to IS 8329 and ISO 2531, including all amendments and revisions in force at the time of submission of tender. The rates shall be inclusive of all taxes, duties, transportation, loading, unloading from railway wagons/vehicles, carting to site, stacking at site, and all incidental charges complete. The Ductile Iron Pipe manufacturer shall possess a valid BIS/ISI licence for the entire range of DI pipes required under this tender, and such licence shall be valid as on the date of submission of tender.

Material: The material shall conform to IS 1387:1993 (Second Revision) – General Requirements for Supply of Metallurgical Materials, wherever applicable.

Manufacture: The Ductile Iron Pipes shall be manufactured in accordance with the requirements laid down in Clause 7 of IS 8329:2000.

Mechanical test: shall conform to the requirements specified in Clause 10 J of IS 8329:2000.

Hydraulic test: shall conform to the requirements specified in Clause 10 of IS 8329:2000.

Cement mortar lining: shall conform to Annex B of IS 8329:2000.

Rubber gasket: Rubber gasket used for jointing shall be of EPDM Rubber gasket and physical properties of gasket material shall confirmed to IS: 5382-1985.

Test Reports: The Contractor shall submit original manufacturer's test reports certifying the quality and strength of the Ductile Iron Pipes, along with inspection



certificates issued by an inspection agency/organization authorized by Ujjain Municipal Corporation.

Stacking Pipes: All pipes shall be stacked as per manufacturer's recommendations unless otherwise directed by the Engineer.

Transportation of Pipes at Site : After pipes, fittings and valves will be delivered to and off-loaded at temporary stores / godown, the Contractor shall make all arrangements for subsequent transport and handling on or about the site to the point of installation, including where necessary any movement into and out of temporary storage.

The Contractor has to transport the pipes and other materials from manufacturer to the site of laying as indicated by the Engineer. Pipes should be handled with care to avoid damage to the surface and the socket and spigot ends, deformation or bending. Pipes shall not be dragged along the ground or the loading bed of a vehicle. Pipes shall be transported on flat bed vehicles / trailers. The bed shall be smooth and free from any sharp objects.

The transportation and handling of pipes shall be made as per IS:12288. Handling instructions of the manufacturers of the pipes shall be followed. All precautions set out shall be taken to prevent damage to the protective coating, damage of the jointing surfaces or the ends of the pipes.

Loading & Unloading: Pipes shall be loaded and unloaded manually or by suitable mechanical means without causing any damage to the stacked pipes. Cranes, chain pulley blocks, or other suitable lifting equipment shall be used for loading and unloading heavy pipes. Where crane hooks are used at socket and spigot ends, the hooks shall be broad and protected by rubber or similar material to prevent damage to the pipe ends and lining. Damage to lining must be repaired before pipe laying according to the instructions of the pipe manufacturer. Pipes shall not be thrown directly on the ground or inside the trench.

When using mechanical handling equipment, it is necessary to employ sufficient personnel to carry out the operation efficiently ensuring safety. The pipes should be lifted smoothly without any jerking motion, and pipe movement should be controlled using guide ropes in order to prevent damage caused by pipes bumping together or against surrounding objects. Rolling or dragging pipes along the ground or over other pipes already stacked shall be avoided.

Support of Pipe on Transit & Storage: The pipe should be given adequate support at all times. The pipes shall rest uniformly on the vehicle bed in their entire length during transportation. Whatever method and means of transportation are used, it is essential that the pipes are carefully placed and firmly secured against uncontrolled movement during transportation to the satisfaction of Engineer.

Stocking of Materials: The Contractor shall remain responsible for the safe custody of all kinds of materials received by him till consumption of the same in the works. The materials must be stored in a protected temporary store near the site of work and shall not be removed without specific permission of the Engineer. Temporary stores shall



be built by the Contractor at location as directed by the Engineer at the Contractor's cost.

A stock register shall be maintained by the Contractor, and the day-to-day receipt, consumption, and balance of all materials shall be recorded therein. This register shall be produced by the Contractor to the Engineer or his representative whenever required for verification of stock. The Engineer shall have free access to the temporary stores/godowns of the Contractor at any time and without prior intimation. Materials supplied for a particular work or part thereof shall not be used elsewhere without the permission of the Engineer.

Temporary Storage: The Contractor shall provide temporary protective storage for all pipes and valves not required for immediate installation in the Works. The Contractor shall provide proper and adequate storage facilities to protect all materials and equipment against damage from any cause whatsoever and, in case of any damage, theft, or loss, the Contractor shall be solely responsible. Pipes shall be stored on reasonably flat surfaces free from stones and sharp projections so that the pipe is adequately supported throughout its length. Storage racks shall be free from continuous support and sharp corners that may damage the pipes. Pipes shall not be stacked in large piles. Socket and spigot pipes shall be stacked in layers with sockets placed at alternate ends of the stack to avoid side stacks. Pipes shall not be stored inside another pipe. On no account shall pipes be stored in stressed or bent conditions or near sources of heat. Pipes shall not be stacked more than 2 m in height, and pipes of different sizes and classes shall be stacked separately. The ends of the pipes shall be protected from abrasion. The pipes shall be protected from excessive heat at all times. The storage facility shall be well ventilated. Valves shall be stored under cover until required for installation, and particular care shall be taken to protect all associated mechanical components.

The period between delivery of pipes and completion of their installation shall be kept to a minimum and, in general, pipes shall be laid within four weeks from the date of dispatch from the manufacturer/store.

Where pipes are strung along the pipeline alignment or placed alongside the Works pending installation, and the period exceeds one month, the pipes shall be supported on timber bearers and raised at least 75 mm above ground level. Jointing materials and accessories shall, in all cases, be stored under cover in the same manner as valves.

The Contractor shall supply the required diameter of pipes at his own cost. The pipes shall be accepted after third-party inspection by an agency authorized by Ujjain Municipal Corporation (UMC). The charges for such inspection shall be borne by the Contractor.

The DI pipes will be transported to the site of work where actually they are to be laid and jointed. All necessary steps shall be taken to prevent damage to pipes during transport, loading, unloading, operations etc. Only approved method for conveyance loading and unloading, stacking operations etc. Only approved method for conveyance loading unloading, stacking operations such as winch and chain pulley block tripod, etc. may be adopted. The DI / C.I. pipe should be laid as per IS 12288 and as given



below.

Laying of Pipes Under Ground: The pipes shall be lowered into the trench with tackle suitable for the weight of the pipe. Either a well-designed set of shear legs or a mobile crane shall be used for lowering the pipe into the trench. When lifting gear is used, the positioning of the sling to ensure proper balance shall be checked when the pipe is just clear of the ground. The pipe shall be thoroughly cleaned of any debris inside the pipe either before or immediately after jointing is carried out. When pipe laying is not in progress, the temporary end closure shall be securely fitted to the open end of the pipeline.

On gradients of 1:15 or steeper, precautions shall be taken to ensure that the spigot end of the pipe being laid does not move into or out of the socket of the laid pipe during the jointing operation. As soon as the joint assembly is completed, the pipe shall be held in position while the trench is backfilled over the barrel of the pipe.

The designed anchorage shall be provided to resist thrust developed by internal pressure at bends, tees, and other specials. The cement concrete block shall be cast in situ to resist the thrust designed considering the maximum pressure the main is required to carry in service or on test and shall be of safe bearing pressure of the surrounding soil.

Cutting and Chamfering to D.I. Pipes: This item shall be executed for cutting pipes in the required length only when directed by the Engineer-in-Charge and after obtaining his permission. The burr left after cutting shall be trimmed off by light grinding or filing. The chamfering of pipes shall conform to IS 12288:1987.

The chamfering shall be suitable for push-on joints/mechanical joints without damaging the rubber gasket. The pipe after chamfering shall be sufficiently smooth to enable insertion of the gasket for push-on jointing. This item includes the cost of all labour and tools required for executing the complete item.

Jointing of Pipes: The D.I. pipes shall be jointed either with flexible joints/SBR rubber gasket joints or by rigid flanged joints. The pipes shall be jointed with rubber gaskets (SBR), except where there are specials/valves to be jointed to the pipeline. The SBR rubber gasket of suitable size required for laying of C.I. pipes shall be procured by the Contractor at his own cost. The SBR ring shall conform to IS 12820:1989.

Before assembling the joint, the spigot of one pipe and the interior of the socket of the adjacent pipe shall be thoroughly cleaned. The insertion of the gasket may be facilitated by the prior application of a thin film of lubricant to the bulb seating inside the socket.

The rubber gasket shall be wiped clean, flexed, and then placed in the socket with the bulb towards the back of the socket. The groove in the gasket shall be located on the retaining heel in the socket, and the retaining heel of the gasket shall be firmly embedded in its seating. It is necessary to ensure that the SBR gasket fits evenly around the whole circumferences removing any bulges which prevent the proper entry of the spigot end. In the larger diameter this operation may be assisted by forming a second loop in the gasket opposite the first then pressing the loop flat one after the



other.

A thin film of lubricant should be applied to the inside surface of the gasket which will be in contact with the entering spigot. In addition, a thin film of lubricant may be applied to the outside surface of the entering spigot for a distance of 25 cms from the spigot end.

The pipe to be jointed should be supported centrally by the tackle used for laying and balance just clear of the trench bottom. The spigot of the pipe must be aligned and entered carefully into the adjacent socket until it makes contact with the gasket. Finally, assembly of the joint is completed from this position.

Joint assembly is completed by forcing the spigot end of the entering pipe through the gasket, which is thus compressed until the spigot end reached the total depth of the socket, if the assembly is not completed with the application of reasonable force, the spigot should be removed and the position of the gasket examined.

For joints 200 mm and above rack and level tackle may be used for completing assembly wherever found necessary at the cost of contractor.

The rack is placed on the socket with the hooked end of the rack extending over the spigot of the entering pipe. The tumble on the end of the 3.2 meters long socket rope is placed over the hook bolt on the rack, which should be in its lowest position, with nut of the top of the thread. The plain end of the rope is passed round the body of the pipe looped through the rope adjuster on the side of the rack housing, wedge inserted and the rope draw tight, this pulls the wedge home thus securing the rope. The tackle is then tamped firmly to the pipe by tightening the nut on the work bolt once the length of the rope is correctly set, it is not necessary to loosen the wedge adjuster for subsequent joints unless the diameter of pipes being jointed in change. The thimble secured to one end of 6.1 m. wire rope is not loosed over the hook at the end of rack and the free end carried to the socket end of the pipe to be jointed.

A special hook and rope adjuster is then fitted on to this rope and securely located in convenient position by means of the wedge. Once the position of the hook and rope adjuster has been thus set subsequent assembly of pipe of similar length should be subsequently jointed.

Backfilling: Pipe trenches shall be backfilled after completion and acceptance of field hydraulic tests and repair of coating as required and/or as directed. The work shall be done in accordance with IS: 12288.

Backfilling of trenches shall be done as specified below with watering and compacting in layers under "Optimum Moisture Content" conditions to achieve required density of refilling and strength after compaction. For the purpose of backfilling, the depth of the trench shall be considered as divided into the following three zones from the bottom of the trench to its top:



Zone A: From the bottom of the trench to the level of the centre line of the pipe	Backfilling by hand with sand, fine gravel or other approved material placed in layers of 150 mm and compacted by tamping. The back-filling material shall be deposited in the trench for its full width of each side of the pipe, specials and appurtenances simultaneously. Special care shall be taken to avoid damage of the pipe and the coating or movement of the pipe.
Zone B: From the level of the centre line of the pipe to a level 300 mm above the top of the pipe	Backfilling and compaction shall be done by hand or approved mechanical methods in layers of 150 mm, special coating or moving or moving of the pipe.
Zone C: From a level 300 mm above the pipe to the top of the trench.	Back-filling shall be done by hand or approved mechanical methods in 150 mm layers after compacting and carried to the level necessary to allow for the temporary restoration of road and path surfaces, and also for hard core (if and where ordered) on roads or to such level as will leave the requisite space for the top soil, road surface etc. to be reinstated as directed by the Engineer.

Where the excavation is made through permanent pavements, curbs, paved footpaths, or where such structures are undercut by the excavation, the entire back-fill to the sub-grade of the structures shall be made with sand in accordance with IS:12288.

The excavated material may be used for back-fill in the following cases, provided it complies with IS: 12288 Clause 4.11.1:

- a) In Zone C: In cases where settlement is unimportant the back-fill shall be neatly rounded over the trench to a sufficient height to allow for settlement to the required level.
- b) In any zone when the type of back-fill material is not indicated or specified. Provided that such material consists of loam, clay, sand, fine gravel or other materials which are suitable for back-filling in the opinion of the Engineer.

All excavations shall be backfilled to the level of the original ground surfaces unless otherwise shown on the drawings or ordered by the Engineer, and in accordance with the requirements of the specification. The material used for backfilling, the amount thereof and the manner of depositing and compacting shall be subject to the approval of the Engineer, but the Contractor will be held responsible for any displacement of pipe or other structures, any damage to their surfaces, or any instability of pipes and structures caused by improper depositing of backfill materials.

Trenches shall be backfilled with selected material placed in layers not exceeding 150 mm in thickness after compacting, wetted and compacted to a density of not less than 90 percent of the maximum dry density at optimum moisture content for zones A, B and C of the surrounding material. Any deficiency in the quantity of material for backfilling the trenches shall be supplied by the contractor at his expense. Water for compaction shall be arranged by the contractor at his cost.



The contractor shall at his expense make good any settlement of the trench backfill occurring after backfilling and until the expiry of the defect liability period.

On completion of pressure and leakage tests exposed joints shall be covered with approved selected backfill placed above the top of the pipe and joints in accordance with the requirements of the above specifications. The contractor shall not use backfilling for disposal of refuse or unsuitable soil.

Laying to Curves: Where flexible jointed pipes are to be laid to curves, the deflection at each joint shall not exceed 75% of the maximum allowable values as per the recommendations of the pipe manufacturer. For sharper curves made bevel pipes, bevel adapters and standard bends shall be provided.

Anchor/Thrust Blocks: The contractor shall provide anchor/thrust blocks at all bends, at dead ends and at all other places both below and above ground as directed by the Engineer. Anchor blocks shall be in cement concrete as per dimensions given in the approved drawings. The grade of concrete as specified in the relevant sections of the specification shall be strictly followed. Shuttering shall be as required and to the satisfaction of the Engineer.

The thrust faces of all blocks shall be placed directly against the undisturbed faces of excavations, and the shape and size of the blocks shall be as shown on the drawings or as otherwise determined by the Engineer having regard to the nature of the ground and the load or thrust to be encountered. The concrete shall be placed around the fitting in such a way that the coupling is not covered or fixed by it to allow for flexibility and to provide access to the collars for replacing when necessary.

Before casting concrete, bituminous felt shall be wrapped around the fitting at the interface between concrete and fitting. Where required, anchor clamps shall be cast into the anchor blocks.

Hydraulic testing:

1. DI pipes and Fittings:
2. All the Pipes, specials and fitting of DI shall be supplied and tested as per relevant IS codes and specifications. The Following code shall be used for
 - a. Factory Test Pressure: as per IS 8329
 - b. Site Test Pressure: as per IS 8329

Suitable section as directed by the Engineer in charge shall be taken for such testing from time to time during progress of the work and satisfactory test given for that section. All testing apparatus, gauges, connections, etc. and water required for testing shall be arranged by the contractor at his cost. The UMC does not undertake any responsibility to supply water for testing which the contractor has to arrange by paying the required charges directly. The UMC shall have the right to recover such charges from his bills if complaints are received that contractor has not paid the charges thereof. If there is delay in testing, the contractor shall refill the trenches for the time being and reopen them at time of testing at his own cost failure of which shall entitle the UMC to do the refilling and reopening of trenches at the risk and cost to the contractor. If the trenches are filled due to any reason whatsoever before testing, the contractor shall have to open them for testing at no extra cost.



Satisfactory hydraulic test shall be recorded when the section under test shall withstand the pressure as specified by the Engineer in charge for about 15 minutes without operating the test pump. The test pressure being maintained at the specified figures during those 15 minutes interval.

The field test pressure to be imposed should be not less than the maximum of following:

- 1.5 times the maximum sustained operating pressure (with minimum design pressure as 6.0 kg/sqcm) in the pipeline.
- 1.5 times the maximum static pressure (with minimum design pressure as 6.0 kg/sqcm) in the pipeline in the pipeline.
- Sum of maximum sustained operating pressure and maximum surge pressure.
- Sum of maximum pipeline static pressure and maximum surge pressure,

The testing conditions for the pipelines are summarized as follows:

- Pre-test and saturation period with addition of make-up water

Pressure : Test pressure

Duration : 24 hrs for DI pipes with cement mortar lining

- Pressure test with addition of make-up water.

Pressure : Test pressure

Duration : 3 hrs

The pipeline shall be filled slowly from the lowest point in such a manner as to allow expulsion of air through air release valves at highest points. The following filling rates are recommended:

Size (mm)	100	150	200	250	300	400	500	600
Filling rate (l/sec)	0.3	0.7	1.5	2.0	3.0	6.0	9.0	14.0

After filling, the pipeline shall be pressurised to the specified operating pressure and left for a period of time to achieve stable conditions. The pipeline shall then be pressurized up to the full test pressure and the section under test completely closed off. Care shall be taken to ensure that the pipeline is free of air. For this if required or if asked by the Engineer, water release test shall be carried out. The hydraulic test shall be maintained for a period of not less than 10 minutes to reveal any defect in the pipes, joints, and anchorages.

If the test is not satisfactory, the fault shall be found and rectified. In case fault cannot be identified easily, the section under test shall be sub-divided and each part tested separately.

If it is required to test a section of a pipeline with a free end, it is necessary to provide temporary support against the considerable end thrust development by the application of the test pressure. The end support can be provided by inserting a wooden beam or similar durable material in a short trench excavated at right angle to the main trench and inserting suitable packing between the support and pipe end.

**Leakage Test for DI/MS Pipeline:**

Test criteria for permissible losses in DI pipes shall be as under -

$Q = 1$ litre per km per length per 10mm diameter of pipe per 30mtr test pressure per 24 hrs. All pressure testing at site should be conducted hydrostatically. The pipes shall be accepted to have passed the pressure test satisfactorily, if the quantity of water required to restore the test pressure does not exceed the amount 'Q', calculated by the above formula.

If it is required to assess a section of a pipeline with a free end, it is necessary to provide temporary support against the considerable end thrust developed by the application of the test pressure. The end support can be provided by inserting a wooden beam or similar durable material in a short trench excavated at right angle to the main trench and inserting suitable packing between the support and the pipe end. No section of the pipe work shall be accepted by the Engineer until all requirements of the test have been obtained.

On completion of a satisfactory test any temporary anchor blocks shall be broken out and stop ends removed. Backfilling of the pipeline shall be completed.

During testing if any joints are found leaking, they shall be repaired and / or redone by the contractor at his cost till the test is found satisfactory. Similarly, any pipes collars, specials, show hair cracks, leaks etc. during testing the contractor shall replace them with sound pipes and specials etc. free of cost. The hydraulic test shall be given in presence of the Engineer in Charge.

Cleaning Out after Testing

On completion of a satisfactory test any temporary anchor blocks shall be broken out and stop ends removed. Backfilling of the pipeline shall be completed.

All pipes or joints which are proved to be in any way defective shall be replaced or remade and re-evaluated as often as may be necessary until a satisfactory test shall have been obtained. Any work which fails or is proved by test to be unsatisfactory in any way shall be redone by the contractor.

After the completed pipeline is tested, approved, backfilled and the Contractor has removed all temporary works and has reconnected any parts temporarily removed from the pipeline, the Contractor shall finally clean out the whole pipeline and flush it through with water.

Disinfection:

After cleaning out, disinfection shall be performed in the following manner - after flushing the pipes the system shall be drained completely, all valves shall be closed carefully and the system filled with a strong chlorine solution of about 50 ppm free chlorine. This solution shall remain in the system for a period as directed but not exceeding 24 hours uninterruptedly. Chlorine residual tests shall be done at various points by an orthotolidine reagent with a colour scale. The disinfection process shall be repeated until the chlorine residual is not less than 10 ppm at all sampling points. After disinfection, the entire pipeline shall be rinsed with potable water till the chlorine residual is less than 4 ppm at various points of testing. Contractor will not be paid separately for this activity.



After completion of disinfection and rinsing the results shall be reported by the Contractor in writing and signed by the Contractor and the Engineer.

The Contractor shall provide at his own expense such sampling points as the Engineer may direct if permanent points are not available or suitably located.

Water for Testing and Cleaning

The Contractor shall provide all water required for testing, cleaning, and disinfection of the pipeline at his own cost and shall use only potable water. Contractor shall also bear the cost of chemical required for disinfection.

Disposal of water after testing, disinfection and cleaning shall be arranged by the Contractor with prior approval from the Engineer. The disposal shall be done in such a manner as will not cause any harm to any standing crop, cultivated land, damage to roads or structures, cause submergence, and/or nuisance to any public or vehicular traffic.

Mode of Payment:

The payment shall be made on Running Meter basis.

Item No. 2

Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers etc.

Specifications:

The DI specials shall be manufactured and tested in accordance with IS 9523 or BS 4772. The mechanical test and hydrostatic test shall confirm to clause 9 and clause 10 respectively of IS 9523. The tolerances on dimensions shall be as per IS 9523.

The manufacturer of the pipes shall supply the fittings. D.I. Specials shall confirm to relevant IS codes of latest edition. Material should be procured from approved manufacturer with manufacturers test certificate. At least 50% of the D.I. specials should be inspected by agency approved by the UMC. Inspection charges shall be borne by the contractor.

All the DI fittings shall be supplied with rubber rings for each socket. The rubber ring shall conform to IS 12820 and IS 5382. Flanged fittings shall be supplied with one rubber gasket per flange and the required number of nuts and bolts. Rubber Gaskets shall be as per IS specifications mentioned in the schedule.

Synthetic rubber ring dimension should be as per IS 12820 / 89 and quality should be as per I.S. 5382/1985 and suitable for jointing of D.I. pipes as per I.S. 8329-2000 or C.I. pipes as per I.S. 1536-2001. Mechanical joint Bends, Tees, Reducer, Adopter, etc. shall be of exact size, dia degree and as per standard specifications.

The special shall be coated or protected from rusting and shall be suitable for D.I. pipes (as per IS 8329/2000)

Mechanical compression sealing flanged socket tail piece (Jiffy flange adopter) shall be of exact size and dia. to match D.I. pipes (IS 8329-2000). Mechanical Joint double



socket reducer shall be as per IS 13382-1992 and suitable to D.I. pipes (IS-8329-2000) sealing gaskets of S.B.R. shall be as per IS 12820-1989.

This item includes providing of special, transporting the special to site and testing. It also includes cost of entire jointing material, cost of specials, and nut-bolts, etc.

The contractor shall supply the required dia. of special at his cost. **The Special shall be accepted after the third-party inspection by agency authorized by UMC**, the charges for the same shall be **borne** by the contractor.

Mode of Payment:

The payment shall be made on per Nos. basis.

Item No. 3

Providing & fixing of following Ductile iron double flanged sluice valves glandless, resilient (soft seated) non-rising spindle with body bonnet of ductile iron of grade GGG 40/SGI 400/12 or equivalent grade or of higher tensile strength grade, as per IS: 3896 part-II-1986 and subsequent revision, wedge fully rubber lined with EPDM food grade quality and seals of NBR. The valve should be with replaceable nut and replaceable sliding shoes; valve stems shall be of single piece thread rolled. Sluice valve shall be compatible for buried applications without valve chambers. The valve should be vacuum tight and 100% leak proof with face-to-face dimensions as BS: 5163-89/ IS: 14846/2000/DIN 3204 F4 and flange connections as per IS: 1538. Valve should be with electrostatic powder coating both inside and outside (thickness 250 micron) with pocketless straight through body passage including jointing and testing with cost of jointing material such as bolts, nuts, rubber insertions, etc. all complete.

Sluice Valve PN-1

100 mm dia Sluice Valve PN-1.0
150 mm dia Sluice Valve PN-1.0
200 mm dia Sluice Valve PN-1.0
250 mm dia Sluice Valve PN-1.0
300 mm dia Sluice Valve PN-1.0
350 mm dia Sluice Valve PN-1.0
400 mm dia Sluice Valve PN-1.0

DI Resilient (Soft) Seated Glandless Sluice Valves

Specification :

1. All Ductile Iron resilient seated sluice valves shall be manufactured strictly in accordance with and conforming to Indian Standard specification IS:14846 / BS:5163/ AWWA C 509 or its latest amendments.
2. The valves intended to be used in water supply systems up to 70°C in vertical/horizontal position. All the sluice valves shall be Double flanged of non-rising spindle type and shall be of PN1.0 type.
3. The Material of Construction for different components, parts of sluice valves shall conform to requirements given in table below:



Sr. No.	Components	Material	Ref. to IS No.	Grade or Designation
1	Body and Bonnet	Ductile iron/ SG Iron	GGG-50/40 or 1865	500/7 or 400/15
2	Stem	Stainless steel	AISI 304 / 316	
3	Stem sealing	NBR wiper ring		NBR O-rings
4	Wedge	Ductile iron/ SG Iron	GGG-50/40 or 1865	500/7 or 400/15, core fully encapsulated with EPDM rubber with integral wedge nut
5	Bonnet bolts	Stainless steel	AISI 420	Sealed with hot melt
6	Bonnet gasket	EPDM rubber	WRAS or DVGW approved	EUW-70
7	Wedge Nut	Aluminium Bronze		
8	Coating	Electro statically applied epoxy powder coating	DIN 30677-2 or GSK guidelines	Internally and externally RAL Blue colour

Manufacturing :

1. Dimensions of each part of the valve shall conform to IS:14846-2000/ BS:5163 / AWWA C 509 or Manufacturer's standard.
2. The valve shall be glandless and pocket less for smooth flow of water.
3. The valve shall be easy in operation having negligible head loss and it shall be maintenance free.
4. Resilient wedge with double sealing points provides absolute water tightness.
5. Ductile Iron wedge core is fully vulcanized with EPDM rubber on all sides.
6. The valve shall be open anticlockwise.
7. The flange of the valve shall conform to IS:1538-1993/ BS EN:1092-2 table-9 or its latest amendments.
8. Hand wheel:-All valve shall be provided with hand wheels as per required size. The direction of closing shall be indicated on the top of the hand wheel.
9. The supplier shall submit a detailed G.A. drawing which is to be approved by the UMC after awarding the work. The valves shall be manufactured and supplied according to this approved drawing.

Testing :

The DI Sluice Valve shall be tested according to IS:14846-2000 / as per approved drawings in presence of representatives of UMC or / and the appointed TPI consultant. Representative of UMC or / and UMC appointed Third Party Inspection Consultant [TPI] may visit / inspect the worksite at any stage of manufacturing for inspection / testing and may reject any material which does not conform to the specified requirement. The supplier shall give at least 15 days' notice period for the inspection/testing of the material. All the charges towards testing / inspection including



traveling charges of UMC representatives shall be borne by the manufacturer. T.P.I. Charges shall be borne by UMC

All valves shall be provided with enclosed greased packed spur gear box (for 400 mm dia. and above size). The valves shall be vertically operated by removable key from top accordingly the design of the shaft and Gear box shall be done. The gear box essentially be of worm and worm wheel design, self-locking type with or without additional Spur gear arrangement to ensure that the effort on hand wheel is limited to 180 N pull and Push. The gear box shall be invariably of Master gear / Auma / Limitorque / Ameya/ Transpower/BEL-Bombay Engg. Ltd./Safex/New-Tech/Perfect Engg. only with operating torque as per AWWAC-504rating.

Marking :

The following information shall be cast/punched/painted on each valve body in raised letters.

- (a) The manufacturer's name or trade mark.
- (b) The nominal pressure of valve.
- (c) The size and serial number of valve.
- (d) Year of manufacturing.
- (e) Heat number of cast.
- (f) UMC / or any other mark.

Packing :

All valves shall be supplied with the wedge closed. Valve of small diameter may be packed in wooden case parts liable to injury in transit shall be wrapped with wood-wool or similar material as a protection.

Valves shall be lowered and fixed in proper position and right to the plump and flange joints with the sets of tail pieces shall be carried out perfectly water tight. Nut bolts, rubber insertion, etc. required for jointing shall be provided by the Contractor.

The valve shall be of the following make only.

- (1) Fouress Engg. (Ind.) Ltd., Bangalore "FOURESS"
- (2) Indian Valve International, Kolkata - "IVI"
- (3) Kirloskar Bros. Ltd., Mumbai-"KIRLOSKAR"
- (4) Indian Valve Pvt. Ltd., Nasik-"IVC"

Mode of Measurement and payment:

The rate shall be paid in Nos. basis.

Item No. 4

Providing & fixing following ductile iron manually operated long body butterfly valves including jointing & testing with cost of jointing material such as bolts, nuts, and rubber insertion all complete.

- (i) 500 mm dia B/F Valve PN – 1.0
- (ii) 600 mm dia B/F Valve PN – 1.0
- (iii) 700 mm dia B/F Valve PN – 1.0

Butterfly Valves as per IS 13095 with PN 1.0 - Gear operated.

Scope – Fabricated valve will not be considered.



This standard cover double flanged and wafer type of metal seated resilient seated cast iron, ductile iron, and carbon steel and lined butterfly valves for general purpose. Valves covered under this standard are manually, pneumatically, hydraulically, or electrically operated. It covers valves of nominal pressure designations up to and including 4 Mpa. and class 300 with ends flanged in accordance with appropriate table of I.S 6418 : 1971 'Cast iron and malleable cast iron flanges for general engineering purpose' or wafer type valves with bodies designed to be accommodate between pipe work flanges in accordance with appropriate table of IS 6418 : 1971 or IS 6392 : 1971 'steel pipe flanges' in nominal size DN 40 to DN 2000. It also covers valves up to class 300 and flanges as per the pressure/temperature ratings given in IS 13159 (Part 1): 1991 'steel pipe flanges and flanged fittings: part I dimensions' and IS 6418: 1971 'cast iron and malleable cast iron flanges for general engineering purposes.'

Reference

The Indian standards are necessary adjuncts to this standard.

Terminology And Definitions

Terminology and definition covered in IS 4854 (Part3): 1974 are generally applicable.

Valve End Connections

Double flanged valves

A valve having flanged ends for connection to pipe flanges by individual bolting.

Service Applications

Valves shall be suitable for one or more of the following applications.

- (a) Tight shut off - A valve having no visible leakage on the disc in closed position under test conditions.
- (b) Regulating - A valve intended for regulating purpose and which may have a clearance between the disc and the body in close position.
- (c) Low leakage - A valve which has specified maximum leakage rate on the disc in the closed position.

Vacuum Condition

Where valves are to be used under vacuum conditions, purchaser shall mention specifically and the detailed design provision shall be mutually agreed between the purchaser and the manufacturer.

Nominal Sizes

The range of nominal valve size (DN) in mm shall be as follows:

40, 50, 65, 80, 100, 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 750, 800, 900, 1000, 1200, 1400, 1600, 1800 and 2000

**Nominal Pressures**

Valve shall be designated by nominal pressure (PN) defined as the maximum permissible working pressure (Mpa) at 20 ° C temperature as follows:
PN 0.25, PN0.6, PN1.0, PN 1.6, PN 1.25 and PN4.0

The class designation for valves specified by nominal pipe size shall be class 125, class 150 and class 300.

Pressure / Temperature Ratings

Maximum permissible gauge working pressure and operating temperatures shall be in accordance with IS 6418: 1971 and IS 13159 (Part I) : 1991 except that restriction on temperature may be placed by the manufacturer on valves in accordance with this standard by reason of valve type, trim materials, or other factors. However, all valves shall be suitable for continuous use at their PN designation within the temperature range of -10 ° c to 65 ° c.

Body Ends**Double Flanged Body Ends**

The dimensions of flanged body ends and drillings shall be in accordance with the requirement given in Annex B. Flanges as per any other specific requirements of the purchaser may also be given as agreed to between the manufacturer and the purchaser or as per I.S. 13159 (part I): 1991.

Flanges shall be at right angles to the axis of the bore and concentric with the bore. Flanges shall be drilled unless otherwise specified and bolt holes shall be off centres. Tapped by the design of the valve.

Wafer Body Ends

Body ends shall be capable of being fitted between the pipe flanges complying with the requirements of annex B flange drilling.

The joint faces shall be at right angles to the axis of the bore and concentric with the bore.

Holes may be provided, where required by the design, for the passage of the bolts securing the flanges and the valve. Where through bolting is not practicable due to the presence of valve shaft, bearing housing, tapped holes may be provided for individual bolting of each flange.

Face To Face Dimensions

Face to face dimensions of double flanged and wafer types of valves shall be as per Table 1.

Face to face dimensions given in Table 1 are exclusive of the sealing gaskets at both ends.



The manufacturer shall ensure that adequate space will be available between valve flanges for bolting when flanged valve with short body face to face to face or wafer long face to face are manufactured.

Tolerance on face-to-face dimension in Table 1 shall be as follows :

Face to face dimension of Unlined valve		Tolerance
MM		MM
Over	Up to and Including	
0	250	+2
250	500	+3
500	800	+4
800	100	+5
1000	2400	+6

Bodies

Bodies end ports shall be circular, and the numerical valves of the diameter shall be as close as possible to the valve of DN.

Disc And Shaft

The disc and shaft shall be designed to withstand the maximum pressure differential across the valve in either direction of flow. The shaft may be of one-piece design or in two pieces separately attached to the disc. Any means of attachment between the shaft and the disc shall be such as to preclude components becoming loose in service.

Seating And Linings

Non-integral seating, and lining shall be used, and their means of attachment shall be such as to preclude their becoming loose in service.

Bearings

The bearings shall be suitable for the maximum loads imposed by the shaft during testing and in service.

For valves DN 350 and above, a bearing shall be provided to take the axial thrust, spring retaining clips (circlips) shall not be used as thrust bearing.

Suitable sealing shall be provided for the shaft where it passes outside the pressure containing enclosure.

Material Of Construction

This standard is based on materials specified in I.S.S. Unless otherwise agreed, the materials shall be of a grade equivalent to those given in I.S.S. or superior. Other material may be used as per agreement between the manufacturer and the purchaser. The material of construction shall be as per table given below:

Sr. No.	Part Component	Pressure Rating (1 Bar + 1 atmosphere)
1.	Body	D.I. / S.G. IRON IS 1865 GR 400/12 or 500/7
2.	Disc	D.I. / S.G. IRON IS 1865 GR 400/12 or 500/7
3.	Shaft (DE/NDE)	SS AISI 410



Sr. No.	Part Component	Pressure Rating (1 Bar + 1 atmosphere)
4.	Seal	EPDM Rubber having Properties equal or superior to the following. 1) Tensile strength Min. 130 Kg/cm ² 2) Elongation at break: Min 375% 3) Tear resistance: Min.35 Kg/cm ² Compression set at 100°C for 72 hours: Max. 20%.
5.	Seat ring / Retaining Ring	SS AISI 316
6.	Bearing	Steel backed PTFE
7.	Internal Hardware	SS AISI 316
8.	External Hardware	C S to IS 1367
9.	Hand wheel	M.S. round, Chrome Plated
10.	Cast Steel parts to be protected with coating suitable for tropics.	Clause 16 of B.S. 1218
11.	Drilling of valves flange	Drilling of the flange shall be as per Table of BS 4504 / IS 1538 and thickness of the flange as per the pressure rating of the valves.

The material of construction of Gear Box for valves shall be as per table given below:

Sr. No.	Description	Materials
1.	Gear Case & Cover	Cast Steel ASTM A 216 Gr. WCB or S.G Iron to IS 1865 Gr. 400/15
2.	Sector Gear	D.I. / S.G.I. IS 1865 Gr. 600/3
3.	Worm / Shaft, spur Gear /pinion /shaft	BS 970 EN 19 / EN 24
4.	Fasteners / Dowels	SS 316 / SS 304
5.	O – Rings	Nitrile Rubber with Shore hardness of 65 $\pm$ 5
6.	Bearing for shaft	Ball / Roller bearing.

Operation

Manual Operation

All valves shall be capable of operated at a differential pressure across the disc as marked on the valve. Lever, worms gear / travelling nut type or any other suitable type of operator can be used.

Direction

Unless otherwise, specified manually operated valves shall be closed by turning hand wheel or lever in a clockwise direction when facing the hand wheel or lever. The design of lever when fitted shall be such that the lever may only be assembled to the valve so that it is parallel to the direction of flow when the valve is open.

All gear travelling nut operators shall be provided with suitable stops to prevent movement of the shaft beyond the limit corresponding to the fully closed position of the disc.



All gear travelling nut operators shall be packed with grease for lifetime operation. Gear / travelling nut operators shall be totally enclosed and weatherproof for general application. For special applications such as marine, submerged service etc. the purchaser may specify special encloser.

All gear / travelling nut operators shall be self-locking type. All lever operated valve shall be capable of being locked at least three intermediate positions.

The operating hand-wheels shall be marked 'CLOSE' or 'SHUT' to indicate the direction of closer.

The operator shall be provided with arrangement to indicate the disc position.

Testing

All valves shall be hydrostatically tested by the manufacturer before dispatch. The pressure shall be obtained without any significant hydraulic shock. Testing shall be carried on before application of paint or other similar treatment unless otherwise agreed between the purchaser and the manufacturer. There shall be no air entrapped within the part of the valves subjected to test pressure.

Performance Testing

Each valve shall be shop operated from fully closed to fully open position and reverse, under no pressure and no flow condition to demonstrate that the complete assembly is workable.

Body Test

Completely assembled valve shall be tested as follows:

'The body ends shall be blanked so that the valve is subjected to the full pressure in all directions include by the test pressure wafer valves may be tested in any suitable manner agreed between the purchaser and the manufacturer. The valve disc shall be in slightly open position and pressure equivalent to 1.5 times the maximum permissible working pressure shall be applied with water. The duration of this test shall be as in Table 3 below in Para 17.3.

Seat Test

The seating surface of the valve shall be cleaned unless a surface treatment forms an integral part of the design or the use of a temporary surface treatment has been agreed between the manufacturer and the purchaser to avoid the possibility of damage under the condition of the test.

NOMINAL DIA MM	MINIMUM TEST DURATION IN MINUTES	
	BODY TEST	SEAT TEST WHEN APPLICABLE
Up to and including 50	0.25	0.25
65 to 150	1.00	1.00
200 to 300	2.00	2.00
350 to 1000	5.00	2.00
1200 to 2000	5.00	3.00



Each valve shall be shop tested for leaks in close position. The test shall be conducted with the body flanges in a horizontal position. Pressure shall be applied to the upstream end of the valve, the downstream being open to atmosphere. The duration of test shall be as per Table above. There shall be no indication of leakage past the valve disc during test and valves shall be drop tight. Seat test shall be carried out in both the direction of valve if agreed between the manufacturer and the purchaser. The seat pressure applied on upstream side shall be equivalent to 1.1 times the maximum permissible working pressure at 20 °C and shall be applied with water.

For regulating type valves seat test shall not be applicable.

Disc Strength Test

The test shall be conducted with the body flanges in horizontal position. The test pressure shall be 1.5 times the maximum permissible pressure at 20 °C. With disc in closed position, hydro test pressure shall be applied to the lower face of the disc for duration as per table-3. There shall be no damage to the valve disc, nor shall any part of valve or disc be permanently deformed by the test. The purpose of this test is to provide evidence of the adequacy and structural integrity of disc and body. Any leakage past the seat shall not be the criteria for rejection of the valve (Sampling test sample as per IS 2500). For regulating type valves, disc strength shall not be applicable.

Maximum permissible leakage shall be as given in Table in para 18.0.

Test Certificates

When specified by the purchaser, the manufacturer shall issue a test certificate confirming that the valves have been tested in accordance with this standard and stating the actual pressures and medium used in the test.

VALVE TYPE	LEAKAGE RATE
Tight shut-off	No visible leakage for duration of test
Low leakage	0.1 mm ² /s X DN (sec 5)
Regulating	Not specified. Outside the scope of this standard.

Inspection

The purchaser or his authorized representative shall have access to the manufacturer's works at all reasonable times to inspect assembled valve at factory. The bidder must make necessary arrangements for testing facilities of the valves as per the relevant IS at factory.

Witnessing Of Tests

When the purchaser desires to witness the tests, this shall be specifically agreed in advance.

**Marking**

Marking shall be cast integral on the body or on a plate securely attached to the body. The markings shall be in accordance with I.S. 9866: 1981.

Preparation for Dispatch

- (a) Valve shall be complete in all respect when dispatched. Each valve shall be drained, cleaned, prepared and suitable protected with 2 coats of red oxide on unmachined surfaces and rust preventive coats on machined and flanged surfaces for dispatch in such a way as to minimize the possibility of damage and deterioration during transit and storage. Painting other than specified on the finished valve shall be as per the agreement between the manufacturer and the purchaser.
- (b) Disc shall be unseated when dispatched, but care shall be taken to ensure that there is no risk of damage to the disc.
- (c) When specified, the body ends shall be suitably sealed to exclude foreign matter during transit and storage.
- (d) Components shipped unattached shall be adequately protected and identified to permit correct field assembly.

Valves shall be lowered and fixed in proper position and right to the plump and flange joints with the sets of tail pieces shall be carried out perfectly water tight. Nut bolts, rubber insertion, etc. required for jointing shall be provided by the Contractor.

Mode of Payment

The payment will be made on No. basis.

Item No. 5

Providing & fixing following ductile iron single chamber triple function temper proof air valves, small orifice with screwed end as per IS:14845-2000 including jointing & testing with cost of jointing material and rubber insertion all complete as per IS:13095-1991.

- (a) 150 mm dia
- (b) 100 mm dia
- (c) 80 mm dia

The valves shall be capable to release air when the main is being filled and to close and remain close when the pipe is full to prevent loss of water. Air being released at sufficiently higher rate to prevent the restriction of the inflow rate. Similarly, the valve shall be capable of ventilating pipe automatically when being emptied. The air inflow rate being sufficiently high to prevent the development of vacuum in pipeline. The valve shall automatically release air accumulating in pipeline during normal working condition. Tamper proof Air Valve shall be as per IS 14845 / AWWA C 512 standard.

Kinetic air valve shall be designed to prevent premature closure prior to all air having been discharged from the line. The air valves shall be of Ductile Iron material and minimum PN: 16 class. The valve shall be Single Chamber Triple Function Tamper



Proof (Both the Orifices to be housed in the single chamber) Air Valves with body and cover in Ductile Iron of Grade GGG50.

All internal parts such as float, shell etc., shall be of st. steel SS 304 all cover bolts of ST steel, float shall be of SS 304 and Gaskets and seals of EPDM. Epoxy powder coating (EP-P) shall be provided inside and outside with colour blue RAL 5005.

The valve should be designed for all the three functions i.e.

1. large orifice for venting of large air volumes on start-up.
2. Large orifice for intake of large air volumes.
3. Small orifice for discharge of pressurized air during operation.

The valves should be capable of venting at high velocities up to sound velocity by stabilized float. For isolation, isolation valve shall be provided resilient seated soft sealing approved make sluice valve with body, bonnet of Ductile Iron of grade GGG40, wedge fully rubber lined with EPDM and seals of NBR, and the valves should be of vacuum tight and 100% leak proof with face dimensions as per BS 5163-89 / IS 14846-2000 / DIN 3202 F4 / F5.

The stem sealing should be with toroidal sealing rings (Minimum 2 O-rings). All the valves should be with electrostatic powder coating with inside and outside with pocket less body passage. The contractor shall provide test certificates for materials and properties shall be in accordance with relevant standards.

All branched outlets including air valve TEEs shall be provided with one ½" BSP Coupling duly plugged for measurement of pressure in due course. The closing plug will be in stainless steel with hex. head.

Triple function Air valves shall be provided with glandless isolating sluice valve as per IS 14846. These should be as per the specifications spelt out herewith & work will involve manufacture, shop testing, supplying, erecting, commissioning & field testing of these valves complete with all materials & labours such as nut- bolts, washers, gaskets etc.

Design & manufacture: As per IS 14845 standard PN 1.6, Kinetic type, Tamperproof design.

Valve Body: Body end parts shall be circular. The bore through the valve shall be as near as practicable to the nominal size of valve.

The valve body shall be of DI GGG 40 or GGG 50 / SG Iron IS-1865 Gr. 500/7.

Air valve shall be suitable to automatically operate so that they will -

- Positively open under internal pressure less than atmospheric pressure to admit air in bulk during pipeline draining operation.
- Exhaust air in bulk and positively close as water, under low head, fills the body of the valve during filling operation.
- "Not blow shut" under high velocity air discharge; and
- Exhaust accumulated air under pressure while the pipe is flowing full of water.



Placing of air valve shall be on pipe and hydraulic gradient peeks and as required by surge analysis / hydraulic design.

Design requirements of Total Tamper Proof Tripple function single chamber Air Valve:

Kinetic air valve shall be as per IS 14845 (latest version) standards generally meeting to the same and still have total tamper proof arrangement.

Triple function air valve shall be provided with a separate glandless design Non rising spindle Isolating sluice valve in order to facilitate inspection / maintenance of the kinetic air valve without closing the main line. This sluice valve shall confirm to IS 14846 standards.

Orifice shall be positively sealed in the close position, but float shall only be raised by the liquid and not by mixture of air and liquid. The sealing shall be designed to prevent the floats sticking after a long period in the closed position.

Minimum diameter of large and small floats shall be as specified in IS 14845 / BS 5163

Inspection and Testing of Valve:

All valves shall be tested by the manufacturer at his works & at his cost in the presence of Engineer-in-charge / Third party.

Valve shall be subjected to following tests for the Pressure and Duration per IS 14845 standards:

Pressure Rating	Body Hydro test pressure	Duration	Seat Test	Duration
	Kg/Cm ²	Minutes	Kg/Cm ²	Minutes
PN1.6	24	05	16	03

Isolating Sluice Valve

Isolating Sluice valves shall confirm to IS 14846. Additionally, they should also meet specific requirements as stated.

Valve shall have non-rising spindle type.

Valve shall be Resilient seated.

Valve shall be with Glandless arrangement.

Flange drilling shall confirm to IS-1538 Table 4 & 6.

**Other Qualification Requirements:**

Valve manufacturers must have ISO 9001, ISO 14001, ISO 45001 certification for manufacturing valves. Manufacturer shall produce the certificate.

Coating:

Each valve shall be cleaned to remove dirt, dust, scales, grease & oil etc.

Valve shall be applied with internal and external epoxy Powder coated RAL blue 5005 colour suitable for drinking water 200Micron Thick.

Mode of Payment:

The payment will be made on No. basis.

Item No. 6

Earth work in excavation for foundation, trenches for pipes / cables or drains etc. by mechanical means / manual means (exceeding 30cm in depth.) including ramming of bottom, dressing of sides, disposal of excavated earth including of all lift and lead up to 50m. Disposed earth to be levelled and neatly dressed.

(a) In all sorts of soil, soft murrum, hard murrum, soft rock, etc.

0 to 1.5 mt. Depth

The trench for laying the pipes shall be excavated true to lines, levels and grades as shown on the drawings or directed by the Engineer with the help of boning rods.

The depth shall be such that the pipe shall have a clear cover of at least 1.2 m. The trench shall be excavated through all strata met with. When it is necessary and ordered by the Engineer in writing, the sides shall be shored or sloped, otherwise they shall be as vertical as possible. The rates shall include shoring and provision of slopes.

Various materials excavated shall be separated and stacked beyond one meter or more from the edge as may be necessary in the opinion of the Engineer to avoid provision of slopes.

The bed shall be even and to the correct grade and line in all cases.

The trench shall be barricaded and warning board fixed, red lights shall be hung at night time at sufficiently close intervals to indicate the danger and a chowkidar employed to see that the lights are properly burning. The contractor shall be solely responsible for any accidents, due to any default in barricading, sign posting or red lights and shall bear the consequences.

At all road crossing, the trench shall be excavated only for half the width of the road and pipe laid. The other half shall be excavated only after backfilling over the laid pipe and making it suitable for the traffic. At all road crossings, the pipes shall be sufficiently laid below the crust of the road.



All pipes, gas line, cables service lines etc. met with during the excavation shall be carefully protected and supported. Any damage done shall be made good by the contractor at his own cost. For making end connection or branch connection it shall be the responsibility of the contractor to excavate the trench in such manner so as to enable the fitter to make the connections conveniently. At crossing of cross drains, sewer mains, old water main, drain connection, electric cable, etc., it shall be to such a depth as to enable the fitter to take the pipe from, below above or through the cross drain or the cable etc as the case may be and as directed by the Hydraulic Engineer. No extra payment shall be made in above cases of excavation. In case contractor has laid the pipeline in the trench excavated less than above specified depth, contractor may be asked to lay the line after making proper depth as directed by the Hydraulic Engineer or his authorized representative on site. The extra labour involved in such cases will have to borne by the contractor. If contractor, fails to carry out such direction, Hydraulic Engineer may give the reduced rates for portion of pipe line laid in the trench as he thinks fit or relay the line at the risk and cost of contractor as deemed fit, no measurement will be taken for joints, pits as the same are included in the item of lead jointing.

The contractor shall have to keep chowkidar and red lights (of a proper size) during night on open trenches during the progress of the work and until the trench or pit is completely refilled. Red flags road closing board etc. and such other precautionary measures shall have to be taken by the contractor. If the contractor fails carry out the above precautionary measures, Hydraulic Engineer shall engage, even without giving a notice to the contractor wherever the situation demands quick action for the chowkidar, places, necessary red lights and manage to guard the trenches all the expenditures so incurred shall be recovered from the contractor from his bill or security deposit. The contractor will have no right to dispute the action taken by the Hydraulic Engineer.

Excavated earth shall be used for refilling of trenches; however, surplus excavated stuff will be the property of Contractor and he may dispose off or stock the same at his own risk and cost. No payment for the carting of surplus excavated stuff will be made.

The earth to be used for filling shall be free from salts, organic or other foreign matter. All clods of earth shall be broken. As soon as the work in foundation has been completed and measured the site of foundation shall be cleared of all debris, brick bats, mortar dropping and filled with earth in layers not exceeding 20 cms. Layers shall be adequately, watered, rammed and consolidated before the succeeding layer is laid. The earth shall be rammed with iron rammers where feasible and with the butt ends of crowbars where rammer cannot be used.

After compaction and consolidation, if any short fall of excavated stuff is found, then th the Contractor shall bring the soil of the required quantity in order to meet short fall at his own cost. Moreover, if any settlement of road after reinstatement or after first monsoon or during watering, contractor shall be fully responsible for the settlement of trenches. Patches / depression / settlement shall be repaired with chhara or soil at his own cost. Surplus excavated stuff shall be disposed-off in such a way that it does not create any nuisance to the public or UMC's road surface.

**Mode of measurement and payment:-**

The depth of excavation shall be counted from the bottom of the base course of metal or asphalt road surface.

Payment shall be made on cubic meter basis.

Item No. 7

Extra for every additional lift of 1.5m or part thereof over item 6 (Note: Only for depth of trench exceeding 1.5m for laying of sewer line & water line and manhole/ chambers including all site clearances, adequate barricades, construction signs, red lanterns and guards as required, dewatering, scaffolding, timbering, machinery, tools implements and generally of all means used for the fulfilment of these items.

The detailed specification is the same as per Item No. 6 above; however, the depth will be 1.5 m to 3.0 m.

Mode of measurement and payment:-

Payment shall be made on cubic meter basis.

Item No. 8

Filling with murrum for pipe bedding or over the pipe including supply of murrum/sand.

Providing murrum/sand bedding under pipe of average 15 CM thickness including watering, ramming, consolidating and dressing, etc. complete as instructed by Engineer-in-charge.

The murrum/sand to be use for filling shall be free from salts, organic or other foreign matter. All clods of sand shall be broken.

As the excavation of trench is done up to required depth and of required width, the sand is filled in trench with average thickness of 15 CM (compacted) in full width of trench before laying pipe. It is watered and rammed to required level so that the average thickness of sand bedding is 15 CM.

Mode of measurement and payment:

The payment shall be made for filling moorum/sand as per drawings. No deduction shall be made for shrinkage or voids, if consolidated as instructed above.

The rate shall be for a unit of one cubic meter.

Item No. 9

Filling by available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift up to 1.5 m.

Pipe trenches shall be backfilled after completion and acceptance of field hydraulic



tests and repair of coating as required and/or as directed. The work shall be done in accordance with IS: 12288.

Backfilling of trenches shall be done as specified below with watering and compacting in layers under "Optimum Moisture Content" conditions to achieve required density of refilling and strength after compaction. For the purpose of backfilling, the depth of the trench shall be considered as divided into the following three zones from the bottom of the trench to its top:

Zone A: From the bottom of the trench to the level of the centre line of the pipe	Backfilling by hand with sand, fine gravel or other approved material placed in layers of 150 mm and compacted by tamping. The back-filling material shall be deposited in the trench for its full width of each side of the pipe, specials, and appurtenances simultaneously. Special care shall be taken to avoid damage of the pipe and the coating or movement of the pipe.
Zone B: From the level of the centre line of the pipe to a level 300 mm above the top of the pipe	Backfilling and compaction shall be done by hand or approved mechanical methods in layers of 150 mm, special coating or moving or moving of the pipe.
Zone C: From a level 300 mm above the pipe to the top of the trench.	Back-filling shall be done by hand or approved mechanical methods in 150 mm layers after compacting and carried to the level necessary to allow for the temporary restoration of road and path surfaces, and also for hard core (if and where ordered) on roads or to such level as will leave the requisite space for the top soil, road surface etc. to be reinstated as directed by the Engineer.

Where the excavation is made through permanent pavements, curbs, paved footpaths, or where such structures are undercut by the excavation, the entire back-fill to the sub-grade of the structures shall be made with sand in accordance with IS:12288.

The excavated material may be used for back-fill in the following cases, provided it complies with IS: 12288 Clause 4.11.1:

- In Zone C: In cases where settlement is unimportant the back-fill shall be neatly rounded over the trench to a sufficient height to allow for settlement to the required level.
- In any zone when the type of back-fill material is not indicated or specified. Provided that such material consists of loam, clay, sand, fine gravel of other materials which are suitable for back-filling in the opinion of the Engineer.

All excavations shall be backfilled to the level of the original ground surfaces unless otherwise shown on the drawings or ordered by the Engineer, and in accordance with the requirements of the specification. The material used for backfill, the amount thereof and the manner of depositing and compacting shall be subject to the approval of the Engineer, but the Contractor will be held responsible for any displacement of pipe or other structures, any damage to their surfaces, or any instability of pipes and



structures caused by improper depositing of backfill materials.

Trenches shall be backfilled with selected material placed in layers not exceeding 150 mm in thickness after compacting, wetted and compacted to a density of not less than 90 percent of the maximum dry density at optimum moisture content for zones A, B and C of the surrounding material. Any deficiency in the quantity of material for backfilling the trenches shall be supplied by the contractor at his expense. Water for compaction shall be arranged by the contractor at his cost.

The contractor shall at his expense make good any settlement of the trench backfill occurring after backfilling and until the expiry of the defect liability period.

On completion of pressure and leakage tests exposed joints shall be covered with approved selected backfill placed above the top of the pipe and joints in accordance with the requirements of the above specifications. The contractor shall not use backfilling for disposal of refuse or unsuitable soil.

The payment shall be done on cu.m. basis.

Item No. 10

Cement concrete grade M-20 (Nominal Mix) with 20mm maximum size of stone aggregate.

(a) For Pipe Encasing

All materials and Workmanship as relevant specification as per Sub Head no.4 in CPWD Specification Volume 1

Mode of Measurements & Payment:

The rate shall be for a unit of one cubic meter.

Item No. 11

Providing and laying in position M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate of reinforced cement concrete excluding the cost of centering, shuttering, finishing, and reinforcement

All materials and Workmanship as relevant specification as per Sub Head no.4 in CPWD Specification Volume-1.

Mode of Measurements & Payment:

The rate shall be for a unit of one cubic meter.

Item No. 12

Extra for laying reinforced cement concrete in or under water and/or liquid mud including cost of pumping or bailing out water and removing slush, etc., complete.

All materials and Workmanship as relevant specification as per Sub Head no.4 (CI

4.2.9.2) in CPWD Specification Volume 1.

Mode of Measurements & Payment:

The rate shall be for a unit of one cubic meter.

Item No. 13

Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding up to floor level including cost of binding wire, wastage and over laps upto 12mm horizontal/ inclined position of reinforcement bars in slab and beams, plinth, chajjas, lintels, up to 4.5m vertical length of reinforcement in wall columns (over laps shall be provided as per requirement of IS: 13920; IS 456 & SP : 34) etc. complete.

Thermo-Mechanically Treated Bars (Fe 500 D or more).

All materials and Workmanship as relevant specification as per Sub Head no 5 in CPWD Specification Volume 1

Mode of Measurements & Payment:

The rate shall be for a unit of one Kg.

Item No. 14

Construction of Valve chambers in brick masonry, locally available in C. M. 1:6. Foundation concrete 150 mm thick in C. C. 1:3:6 of trap metal size 25 mm to 40 mm thick, inside & outside cement plaster in C. M. 1:3 and top cover of RCC slab (1:1.5:3) of 150 mm thick up to 1 mt. depth from G.L. incl. cost of excavation and refilling. With cast in situ RCC slab in two piece, with 23 mm thick brick masonry wall in C. M. 1:6 with MS frame & cover & CI steps etc. complete

Valve Chamber – 1.2 m x 1.2 m

Valve Chamber – 1.8 m x 1.8 m

Valve Chamber – 2.4 m x 2.4 m

Excavation

All relevant Specification as per Item no.6. It shall be completed as per the instruction and as directed by engineer in charge.

PCC (1:3:6)

All materials and Workmanship as relevant specification as per Sub Head no.4 in CPWD Specification Volume 1.

RCC Slab (1:1.5:3)

All materials and Workmanship as relevant specification as per Sub Head no.4 in CPWD Specification Volume 1.

Bick masonry in CM (1:6)

All materials and Workmanship as relevant specification as per Sub Head no.6 in CPWD Specification Volume 1

Plaster in CM (1:3)

All materials and Workmanship as relevant specification as per Sub Head No.13 in CPWD Specification Volume 1

MS Manhole & Cover

Material shall be of good quality & approved by Engineer in Charge

CI Steps

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 are as below:

The Polypropylene conforming to an ASTM D-4101, injection moulded 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.

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 grip chequered portion of the steps shall be well kept outside the masonry.

During fixing of the steps, the 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.

Providing and fixing C.I. Steps

C.I. steps of 500 x 150 x 22.5 mm size shall be of best quality.
Painting material for anti-corrosive shall be of best quality.

C.I. Steps shall be fixed as and where directed. The steps shall be embedded firmly in masonry wall and fixing in horizontal space between two steps shall will be as directed by the Engineer-in-charge.



The rate includes cost of all labours and materials required for completion of this item.

Mode of Measurement:

The rate shall be for a unit of one number.

Item No. 15

CI Sluice valve / Fire hydrant & fixtures Providing & fixing CI Sluice Valve (with cap) / Fire Hydrant complete with bolts, nuts, rubber insertions, etc. (tail piece if required will be paid separately)

150 mm dia.

200 mm dia.

250 mm dia.

300 mm dia.

All materials and Workmanship as relevant specification as per Sub Head no.18 (18.5) in CPWD Specification Volume 2

The payment shall be made as per number basis.

Item No. 16(a)

Trenchless Pipe pushing method of suitable dia. hole below natural ground level and pushing MS casing pipe and insertion of carrier pipe and anti-corrosive treatment, epoxy painting, PU coating and insulation sheet / spacer including excavation, shoring/ strutting, preparation and maintaining the entry and exit pit, excluding cost of Supply, laying and jointing of MS casing Pipe and carrier Pipe (For Railway and Highway crossings, Nallah crossings)

In all type of soil, Moorum

300mm to 600mm

More than 600mm and up to 1000mm

General Specifications

Tentative location(s) of road crossings, State highway crossings, canal, and other such crossings are shown in the construction drawings. The pipeline shall be installed in M.S. casing pipes conforming to the specifications given herein.

The casing pipes shall be installed in accordance with the details given in drawing and the casing, bushing, and insulators, etc., shall be installed on the carrier pipe as detailed in drawings. Casing shall be installed with even bearing throughout its length and shall slope towards one end, as specified or desired by the engineer-in-charge. The ends of the casing shall be sealed to outside of carrier pipe in accordance with the details given in drawing.

Before installation, holes for installing vent pipes shall be cut and burrs if any shall be removed. The welding of both carrier pipe and casing pipe shall be done in accordance with the welding specifications, given herein. Before installing the casing pipe, it should

be cleaned of all internal obstructions and during installation care should be taken to keep the inside clean.

The section of carrier pipe to be placed in any casing shall be closed at each end, hydrostatically tested preferably with dead weight tester for at least two hours. Only on successful completion of this test, shall the carrier pipe section be inserted in the casing pipe. The installation of casing may open cut as circumstances may permit or require as directed by the engineer-in-charge.

The installation of casing in bended section of the carrier pipe shall be performed by metre bends of the casing pipe provided that the length of each metre cut out of casing pipe shall be such as to provide a clearance of at least 1-1/2" between the inside of the casing pipe and the outside of the coated carrier pipe.

Excavation for casing installation shall be immediately backfilled at the completion of the work with suitable solid matter and packed thoroughly to prevent seepage of water into the excavation.

At road crossings the work shall be performed to the specifications of local authorities or such public bodies as may be in charge (S) of roads, to be crossed.

In case, however the minimum requirements of the governing agencies are less than those set out in the drawing or the specifications given herein, then the requirements given in the drawings and the specifications given for encased line shall be followed.

Whereas the casing pipe in the case of encased line to be laid normal by boring, tunnelling, engineer-in-charge may at his discretion permit open-cuts to be made for the installation of casing provided, however, that the Contractor shall procure the necessary permit / license for the same from competent authority. At locations wherein the open cut methods are permitted, the Contractor shall pass the carrier pipe through the casing located in the trench after the approval of the engineer-in-charge in writing and care shall be exercised to avoid damage to pipe coating and wrapping during this operation. The Contractor shall produce a certificate in writing from concerned authorities for its satisfactory restoration and payment thereafter.

At all crossings, the carrier pipe shall be laid straight without bends so that, if necessary, the pipe at a later date may be replaced without cutting the casing. The carrier pipe shall extend at least 2 meters beyond the end of casing pipe at either end straight.

At road crossings the Contractor shall eliminate unnecessary bending of pipe to conform to the contour of ground by gradually deepening the ditch at such approaches as directed by the engineer-in-charge. Where the installation of the casing has been made by open cut Contractor shall install suitable temporary bridge work ensuring the safety of the traffic aids and safeguards for protection of the public safety, or he shall provide suitable diversions as desired by the engineer-in charge.

At all roads/canal pipeline crossings shall be done with Cased Crossing by Jacking with Augur Boring Method except specifically instructed by EIC.



The method of carrying out a cased crossing by boring for various crossings on this pipeline route shall be jointly inspected by the representative of the Client and Contactor for each category of work prior to commencement of actual work. Pipeline under Road applicable portion of the right-of-way shall be encased in accordance with the specification. This item of work shall include, necessary clearing and grading required therefore, trenching to the depths and widths required, welding of casing and carrier pipes, testing, lowering in, installation of vent assemblies, end seals, insulator and all other fittings that may be required, backfilling, clean up, complete restoration to the original condition and further strengthening and protective works as may be required. The work shall be carried out in accordance with the drawings and as directed by the engineer-in-charge. For various operations mentioned above, the specifications pertaining to these operations shall apply in addition to the specifications given herein.

The Contractor shall be permitted to use William Sons type Neoprene seals in place of concrete end seals for the crossings. The item shall be procured by the Contractor himself as per the provisions under the appropriate head of work in case Contractor so desires. The representative of the UMC may also be associated to determine the quality of the material and its delivery schedule from the open market. However, the particular work defined under the proper head shall not be delayed on account of non-availability of Neoprene end seals. In such case, concrete seals may be provided.

On both ends of pushing concrete supports are to be provided as per direction of engineer-in charge.

Mode of Payment:

The payment shall be made on Rmt basis.

Road Crossings by HDD

Complete work of the road / rail / approach / canal crossing (between the limits are defined as approved drawings) by HDD method including pipe to work site(s), manpower, equipment, other resources, fabrication, string preparation of pipes, welding, welding repair, radiography, coating of field joints with special type Heat Shrink Sleeve and repair of pipeline coating with special repair patch materials as per specifications, pre testing / post testing etc. of complete string made for crossing etc. and execution of, but not limited to, following works in accordance with specifications and instruction of Engineer-in-charge.

Pre-construction survey based on site visit, collection of data (if required) from concerned Authority including design and detail engineering with stress calculations and making of crossing drawings for getting their approval from concerned Authority/ Engineer-in-charge.

Drilling to required depth for all types of strata, all depth to accommodate the pipeline laying at all conditions encountered during rail/ road/water crossing/ live pipe rack crossing by approved HDD methods for providing minimum cover specified in code/ specification or the actual depth as decided by concerned authority, whichever is more.



Backfilling of the ditch/ trench including restoration and cleanup of area and all other works including, cleaning, final hydrotesting etc. Coating field joints with special type heat shrinkable sleeves (Direx) and repair of pipeline coating with special repair patch material as per specifications (inclusive of supply of material), for HDD crossing.

Mode of Payment:

The payment shall be made on Rmt basis.

Item No. 16 (b)

Manufacturing, providing and supplying spirally welded / ERW / SAW / fabricated M.S. Pipes (commercial quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming "V" edge on both ends of pipes railway freight, insurance unloading from railway wagon, loading into truck, transport to stores /site unloading, stacking etc, complete as per IS 3589 and IS 5504 as applicable as per specifications (No negative tolerance in thickness is permissible).

Casing Pipe

508 mm dia – 6.3 mm thick (Rs. 4900/m - Rs 83 / KG)

900 mm dia – 8 mm thick (Rs 11180/m -Rs -83 / kg)

This specification covers the general requirements for supply, fabrication, delivery at site laying, stacking at site, jointing, testing, and commissioning of all welded M.S pipeline, appurtenances, specials etc. above/below ground, including Civil works required for the same.

Applicable Codes of Practice (M.S. pipes)

The following standards and codes are made a part of the specification. All standards, tentative specifications, codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions.

In case of discrepancy between this specification and those referred to herein, this specification shall govern.

Sr. No.	Code	Description
1	IS: 2062-2011	Hot Rolled Medium and High Tensile Structural Steel-Specification
2	IS: 814	Covered Electrodes for manual Metal Arc Welding of carbon and C-Mn steel.
3	BS EN 499	Welding Consumables. Covered Electrodes for Manual Metal Arc Welding of Non-Alloy and Fine Grain Steel. Classification
4	AWS: A-5.1	Specification for Mild Steel Covered Arc Welding Electrodes.
5	IS: 3613	Acceptance Tests for Wire Flux combinations for Submerged – arc Welding.
6	AWS: A-5.17	Specification for Bare Mild Steel Electrodes and Fluxes for Submerged Arc Welding. IS: 1377 - Technical Supply Conditions for Threaded Fasteners



Sr. No.	Code	Description
7	IS: 1367	Technical Supply Conditions for Threaded steel Fasteners (Parts 1 to 3).
8	IS: 2074	Ready Mixed Paint, Air drying, Red Oxide Zinc Chrome and Priming- specification
9	IS: 102	Ready Mixed Paint, Brushing, Red Lead, non-setting, Priming.
10	IS: 816	Code of practice for use of Metal Arc Welding for General Construction in mild steel.
11	IS: 4353	Submerged Arc Welding of Mild Steel & Low Alloy Steels – Recommendations.
12	IS: 817	Code of practice for Training and Testing of Metal Arc Welders.
13	IS: 1182	Recommended practice for Radiographic examination of Fusion - Welded Butt Joints in steel plants
14	IS: 2595	Code of Practice for Radiographic Testing.
15	IS: 3658	Code of Practice for Liquid Penetrate Flaw Detection
16	IS: 5334	Code of practice for Magnetic Particle Flaw Detection of welds.
17	ASTM E 94	Guide for Radiographic Testing
18	ASTM E 709	Guide for Magnetic Particle Examination.
19	ASTM E 165	Test Method for Liquid Penetrate Examination.
20	IS: 3600	Methods of Testing Fusion Welded Joints and weld metal in steel (Parts 1 to 9)
21	IS: 4853	Recommended Practice for Radiographic Inspection of Fusion Welded Butt Joints in Steel Pipe
22	IS: 3589	Seamless or electrically welded steel pipes for Water Gas and Sewage (168.3 to 2540 Outside Diameter)
23	IS: 6631	Specification for Steel pipes for Hydraulic Purposes
24	IS: 7343	Code of practice for ultrasonic Testing of Ferrous Welded Pipes and Tubular Products
25	IS: 2598	Safety Code for Industrial Radiographic Practice
26	IS: 5822	Code of Practice for Laying of Electrically Welded steel pipes for water supply
27	IS: 1608	Metallic material-tensile testing at ambient temperature
28	IS: 9595	Metal Arc welding of Carbon and Carbon-Manganese Steels – Recommendations
29	IS: 2825	Code of unfired Pressure Vessels
30	IS: 5504	Specification for Spiral Welded pipes
31	IS: 10748	Hot-rolled Steel Strip for Welded Tubes and Pipes - Specification

Manufacturing, Supplying, Delivery, Lowering, Laying, Jointing of MS Pipeline

Scope of Work

Manufacture, supply and delivery of submerged Arc welded M.S Pipe having sleeve / swaged ended from plate or coil conforming to IS-3589 and/or IS-5504 with its latest revision / amendment with inside 406 micron thick food grade epoxy coating and outside 3LPE coating conforming to DIN 30670 for the specified thickness & inner



diameter of pipe at site with all type of specials, manholes, tees, bends & flanges, lowering, laying and jointing the pipes with welding in prepared trench with required excavation in all strata's, necessary utility crossings, breaking the road surface/ canal / existing structures & reinstating the same, necessary traffic diversion work, refilling around the MS pipeline shall be done by useful selected excavated soil which do not damage the external 3LPE coating (i.e. use of excavated soft/hard rock, pebble etc. shall not be permitted) after completion of work, disposal of surplus excavated stuff, including providing & fixing pipe indicators at every 1 Km distance including hydro testing etc. complete with all taxes, insurance, freight charges, octroi, inspection charges, transportation, etc. complete including all labour, materials and as per specification and to the satisfaction of Engineer-in-charge.

After completion of laying, contractor shall provide L-section of the pipeline and shall give details of latitude and longitude of every air valve, butterfly valves, scour valve, change in direction, crossing, encasings etc.

Measurement for MS pipeline shall be made in meter of actual pipe laid in lines and levels required. Length shall be measured to the nearest 1cm.

Standards

Submerged Arc welded Hot finished mild steel sleeve/swaged ended pipes to be manufactured supplied and delivered under the scope of this contract shall be manufactured in accordance and conforming to IS-3589 and/or IS-5504. Pipes supplied shall be with inside cement mortar lining and outside guniting as per detailed specifications.

Marking

The methods of marking all the pipes to be delivered under scope of contract shall ensure that all the information will remain legible even after transportation storage in open space etc. In general, the legible and marking upon the goods shall indicate the followings.

1. Manufacturer's brand name and / or trademark.
2. Purchaser's mark as "**UMC**" be stencilled
3. Diameter, Length, and wall thickness.
4. Pipe No., Pipe Designation
5. Date of manufacture
6. Any other important matter that the manufacturer deems fit to be inscribed.

All the MS pipes of diameter up to 2500mm (I.D.) shall be provided with ISI certification mark on each pipe.

Packing and Handling

The materials shall always be packed separately dispatched from manufacturer's works with adequate protective measures to prevent damages and deterioration while in transport or stored at any place. The pack shall always to be so neat and tidy that may withstand any robust and rough handling.



The supplier shall use proper handing instruments / equipment and shall follow to a suitable method of handing of pipes as may be approved by Engineer In-charge, while unloading and stacking materials in the stores.

Workmanship

All pipes with internal cement mortar lining and external guniting shall be finished and shall conform to detail specifications & relevant IS codes.

Test Certificate

The contractor shall always provide manufacturer's test certificate in accordance with every batch / lot of goods as manufactured and supplied.

Materials

Steel Plates/H.R. coil

The steel plates for pipes, fittings, specials, and stiffeners shall be of mild steel conforming to IS: 2062, Grade-E250 BR or H.R. coil conforming to IS: 10748 grade III.

Welding Consumable

Such as electrodes, filler rods and wires shall conform to IS: 814, IS: 3613, IS: 6419 and IS: 7280.

Manufacturing

The mild steel pipes shall be manufactured from H.R. coils conforming to IS-10748 Grade-III or mild steel plate confirming to IS 2062-2011. The pipes are to be fabricated as per terms and conditions as laid down in IS-3589 and/or IS-5504. The pipe shall be manufactured from Fe-410 grade steel.

The steel material viz. MS plate or coils having required thickness (with no negative tolerance) and minimum 1500 mm width with no negative tolerance in trimmed condition having length & width as shown in the schedules of material should have been manufactured and tested under ISI mark scheme or such license under other institution valid for the respective country conforming to IS specification No.IS-2062-2011 Grade- E250 BR for MS plates and IS 10748 Gr.-III for hot rolled steel coils.

The collection and testing of samples will be in accordance with the following Indian Standard and para testing of samples. Imported steel plates shall not be allowed for manufacturing of pipeline.

Note:

- for MS Plate: IS 2062 is to be read as IS: 2062; Gr. E250 BR
- For H.R. Coil: IS 10748 is to be read as IS:10748 Gr. III

Sr. No.	I.S. No.	Title
1	228	Method of chemical analysis of steel (Second revision)



Sr. No.	I.S. No.	Title
2	1599:1985	Method for Bend test (Second revision)
3	1608:1995	Mechanical testing of metals- Tensile testing
4	3803:1984	Steel conversion of elongation value part-I Carbon and low alloy Steel (Second revision)
5	8910:1978	General Technical delivery requirements for steel and steel product.
6	9595:1996	Metal arc welding of carbon and carbon manganese steels (First revision) - Recommendation
7	1730:1989	Dimension for steel plates, sheets, strips & flats for general engineering purposes (second revision)
8	1852:1985	Rolling & cutting tolerances for Hot re-rolled steel products. (Fourth revision)

In addition to above wherever necessary and suggested by inspecting agency, API or other relevant standards will be used for testing and collecting of samples.

Unless otherwise specified, the MS plates supplied under this tender should conform to the applicable requirements of the current addition of the IS specifications No. IS: 2062- 2011 Grade-E250 BR killed Quality or equivalent standard and or IS 10748, Gr. III for hot rolled steel coils for manufacturer of spirally welded pipes.

The permissible variations in dimensions & tolerances applicable in length and width of MS plates should be as per IS specification No 1852:1985 as applicable to rectangular, sheared cut MS plates but no negative tolerance in thickness will be acceptable.

The plates/ HR coil older than 6 months from the date of award of work shall not be allowed to manufacture pipes and these plates/ HR coil shall be free from any cracks, surface flaws, laminations, scares, pits, splits, harmful scratches, and other defects.

The MS plates shall be capable of forming operations and should not un-duly loose the specified strength and property during various operations viz. drilling, threading, plugging welding etc. and process adopted for fabrications & erection of pipeline. Also, the plates shall be resistant to cleavage, fractures & effect of ageing.

Technical Advice

The contractor shall be fully responsible for proper liaison with the department to evolve satisfactory welding procedure for fabrication & erection of pipe manufactured from the plates / coil supplied by them. The contractor on receipt of a request from the dept. shall without any cost to the dept. arrange to furnish manufacturer's technical advice (with up to date instructions Booklet, technical literature etc. regarding any problem concerning fabrication in particular, suitability of welding, consumables weld grooves, design, heat treatment etc.) such advice shall be rendered till the expiry of contract.



Acceptance of Goods

At the time of delivery of materials, the manufacturer will have to provide test results in accordance with IS specification No. IS-2062-2011 or equivalent standard of the MS plates or IS 10748 for hot rolled steel coils supplied along with the challans. The material will not be accepted without test results of the manufacturer. If the test results of the respective lots will be found satisfactory with respect to relevant IS or equivalent standard specification and with no negative tolerance in thickness only, then material will be accepted by the department otherwise rejected.

Thus, in case of non-acceptance and return of materials by the department, the department will not be responsible for the cost of materials and its transportation or any other cost.

Inspection, Sampling & Testing

To have the quality assurance of the materials, the Engineer-in-charge may arrange inspection of his representative / consultant / third party inspection agency. The material unless inspected, passed and stamped for acceptance shall not be dispatched.

Testing of Samples

Three samples shall be drawn per heat or from a lot of 500MT of HR coils/MS plate whichever is less jointly as above by the Engineer-in-charge/ his representative and authorized representative of the Contractor. Each sample will be given identification No. and a slip indicating identification No., date of sampling and signature of above representatives should be kept with the samples.

Out of three samples drawn one sample will be sent for testing in accordance with relevant IS specifications by the Inspection team / third party agency to any one of the following laboratories as per testing requirement or any other laboratory as may be decided by the Engineer-in-charge.

1. Gujarat Engineering Research Institute (GERI)
2. State/ Central Govt. laboratory/ Government Engineering College.
3. State/Central Government/ BIS approved laboratory.

Out of remaining two samples, second sample will be kept by the department and third will be kept by the supplier as reference sample. The test result should be obtained within ten (10) days from the date of sampling positively without fail and furnish to the department duly countersigned by the authorized official of Inspection team / third party agency. The test result should indicate physical and chemical properties of the test samples in accordance with relevant IS specifications. The necessary Inspection & samples testing charges will also be borne by the Contractor. In addition to the above whenever necessary and suggested by Engineer-in-charge, API or other relevant standards will be used for testing and collection of samples. The M S plates supplied under this tender should confirm to applicable requirements of the current edition of IS specification No. IS:2062 Grade-E250 BR killed quality and IS10748 for hot rolled steel coils.



The Inspection/ Testing note regarding the testing of the plates/ HR coils shall have to be furnished with all relevant test certificates/ documents to the Engineer-in-charge and acceptance shall be given, if they are manufactured as per the standards.

Wall Thickness

The wall thickness of pipes shall be as per the minimum mentioned in the tender. No negative tolerance will be allowed; only positive tolerance will be allowed.

Tolerance in wall thickness shall be within + 5.0 % limit.(Higher side only)

Pipe Ends

All the pipes shall have one end swaged and other end plain / suitable for field welding. The edge of each pipe must be truly vertical. The swelled/swaged end shall be formed, strictly as per the dimensions and process mentioned in IS:3589:2001. Normally the dimension of the swelled/swaged end shall be such that the plain end can be inserted easily at the time of laying on site.

Length of Pipes

The random length of pipes shall be 6 meters. In specific locations, smaller lengths can be accepted as per Engineer-in-charge.

Straightness of Pipes

Finished pipes shall not deviate from straightness by more than 0.1% of the total length checking for straightness shall be carried out using as taut string or wire from end to end along the side of the pipe to measure, the greatest deviation.

Testing of Pipes

The main tests among others to be conducted on each pipe shall be as per IS-3589 and/or IS-5504 with its latest version.

Mechanical Test:

Tensile Test:

Tensile test shall be carried out as mentioned in IS:1894:1972 or its latest version as well as IS:3589:2001. The tensile strength & percentage elongation of the pipes shall strictly conform to the provision of IS:3589: 2001. The Manufacturers shall submit the required test certificates at free of cost, both for the pipes as well as steel strips also.

Guided Bend Test:

Guided Bend test shall be carried out as per the provisions of IS:3589:2001 and necessary test certificate shall be submitted by the Manufacturers at free of cost.

**Chemical Composition:**

As mentioned earlier in 2.2, the steel used for manufacturing shall strictly conform to IS:2062:1992 having grade designation Fe 410W B. Chemical composition should be conforming to IS:2062: 1992. Laddle analysis shall be carried out as mentioned in IS:2062:1992 and various constituents viz. Carbon, Manganese, Sulphur, Phosphorus, Silicon, copper etc. shall be within prescribed permissible limits. The Manufacturers shall submit the required test certificates at free of cost, both for the pipes as well as steel strips / H.R. Coils also.

Sampling of pipes

The sampling of pipes shall be as in IS:4711 with latest version/amendment or as directed by the Engineer-in- charge.

Condition of Supply

The pipes with inside cement mortar lining and outside guniting shall be as per specifications.

Other Tolerances

As per IS-3589 and/or IS-5504 with latest version (Except for wall thickness). M.S. Pipes shall be welded either longitudinally or spirally.

Before fabrication of pipes and specials / fittings is commenced, the copies of the mill sheets and the manufacturer's test certificates for plates and other materials required for fabrication shall be submitted by the Contractor to the Engineer In-charge for his approval.

When instructed by the Engineer In-charge, the Contractor shall supply free of charge to the Engineer-in-charge for testing suitable samples of the materials to be used / used in the Works.

Inspection

All materials will be subjected to inspection by the Engineer In-charge, his authorized representative. The inspection charges shall be borne by Contractor. However, in any case of re-inspection due to rejection / rework required of inspected goods or inspection could not be carried out due to non-readiness of material called for inspection etc., the additional charges for inspection will be borne by the contractor and are required to be paid directly to the inspection agency. All such incidents will be reported to the Engineer-in-charge in writing within a week.

The Contractor shall notify the Engineer In-charge, in advance of the production of materials and fabrication thereof, in order that the Employer may arrange for mill and shop inspection.

The Engineer In-charge may reject any or all materials or work that does not meet with any of the requirements of this specification. The Contractor shall rectify or



replace such rejected material/performed work at his own cost, to the satisfaction of the Engineer In-charge.

The Engineer In-charge shall have free access to those parts of all plants or any other premises and sites that are concerned with the furnishing of materials or the performance of work under this specification.

The Contractor shall furnish to the Employer's inspector reasonable facilities and space without charge for inspection, testing and obtaining of any information he desires in respect of the character of material used and the progress and manner of the work.

Fabrication of MS Pipe

General

The pipes shall be truly cylindrical, and straight in axis. The ends shall be accurately cut and prepared for field welding. The external circumference of the pipe pieces, which are to be fixed adjacent to flange adapter with fixed outer diameter, shall not deviate from theoretical one by more than 1 mm. To obtain this accuracy the pipe shall be rolled several times, if necessary, as pipe pieces should be truly cylindrical.

The external longitudinal welding of this pipe shall be ground smooth flush with surface to the satisfaction of the Engineer In-charge, for a length of 200 mm. No extra cost shall be charged by the Contractor for this grinding work.

Minor repair by welding or otherwise shall be permitted at the discretion of the Engineer In-charge, but such repairs shall be done only after obtaining the previous permission of the Engineer. Any pipe or part thereof which develops injurious defects during shop welding or other operations shall be rejected.

Fabrication

Pipe shall be manufactured by continuous process, Spiral Submerged Arc Welding (SAW) facility with online testing sequentially, dust free environment, X-ray, Ultrasonic testing, adequate Hydraulic testing, etc.

The contractor shall get the MS pipe fabrication at well established, proven, having adequate test facility, having pipe coating facility (inside-cement mortar lining & outside – guniting), having valid factory license. The contractor shall propose such manufacturing unit/s for with credentials of manufacturing unit/s approval by the department prior to placement of order. The department shall not be responsible for non-acceptance of MS pipes manufactured/ being manufactured in absence of such approval from the department of manufacturing unit/s.

In no case manufacturing/ fabrication of MS pipes shall be permitted at site. This manufacturing unit/s should have the following minimum set-up viz.,

1. Continuous Plate bending machines for rolling.
2. SAW (Submerged Arc Welding) machine & Automatic welding machines



(suitable for circumferential as well as longitudinal welding) - suitable for 3000 mm Dia pipes.

3. Pipe coating facility (inside-cement mortar lining & outside – guniting) set-up
4. Hydraulic Testing Machines
5. Travelling gantry or crane of suitable capacity
6. Mobile cranes of suitable capacity for loading/unloading of HR/Plates and Pipes.
7. Lathe for machining of the flanges, rings, plates etc.
8. Equipment for abrasive/ shot blasting and applying paint by spray gun.
9. Equipment for cold forming of plates up to 25 mm thick to the required curvature
10. Pipe hydro-testing set-up
11. Testing equipment online and offline such as UT / radiography / DPT / Chemical & mechanical laboratory for DT & NDT etc.

In addition to above, the details such as company profile, manufacturing experience, order in-hand, client list, quality certifications or other details pertaining to pipes fabrication information as asked by the department.

Cutting plates to size

The plates shall be indented in such length as to have minimum wastage and to make the pipe as far as possible with one longitudinal weld joints.

Before cutting, all the edges of the plates shall be cleaned by brushing/grinding on both the sides.

After the plates are cut, the edges shall be made smooth and even by polishing with an electrical or pneumatic grinder to remove all inequalities. Care shall be taken to see that the cut edges of the plate are perfectly straight. Jigs to be used for this purpose shall depend upon the types of cutting machine used. The plates cut to the required shape shall be checked for correctness before they are rolled into pipe drums. If any corrections are required, the Contractor shall do the same by re-cutting, if necessary. If any plate or flat is found to be warped, to have corrugations, the defects shall be removed by putting the plate or flat into a roller press, and no extra payment for this rectification work shall be made. The laminated or heavily corroded plate shall not be used in the manufacturing of the pipe.

Rolling of Plates

The plates cut to the exact size shall be put into a rolling machine to form a pipe of the required diameter. The Contractor shall adjust the rolling machine so as to give a uniform curvature to the pipe throughout its circumference. The curvature obtained shall be checked by the Contractor's foreman during the process of rolling and if proper curvature is not obtained at any place including the ends, the rolling operation shall be repeated at this stage or even after the longitudinal welding of the drum where directed. Heating of plates to obtain the desired curvature shall not be permitted.

Tacking the Drums

The rolled drums shall be kept on an assembly platform for tacking; care being taken



to ensure that the tacked drums have their end faces at right angles to the axis of the pipe. While tacking the drum a gap of 2 mm to 4 mm shall be maintained where hand welding is permitted. However, where the welding is to be done on automatic welding machine, there is no need of maintaining such gap depending on the penetration through complete thickness of the welding required. To achieve this objective, clamp spiders, tightening rings and or any other approved gadgets shall be used. Each such drum, before being taken to the assembly platform, shall be numbered on the inside with oil paint, stating the plate thickness as well.

Assembly of Drums into Pipes

The tacked drums shall then be transported to an assembly platform where they shall be tack-welded together to form suitable pipe-lengths. Plate shall be bent in the maximum possible width to reduce the number of circumferential joints.

The longitudinal joints shall be staggered at 90 deg. The drums when tacked together shall have no circumferential gap when the welding is done on automatic welding machine. But when hand welding is adopted, a gap of 2mm to 4mm shall be maintained to obtain a good, butt-welded joint.

The assembly shall be truly cylindrical and without any kinks. The faces shall be at right angles to the axis of the cylinder. A suitable arrangement for testing the correctness of the face shall be provided by the Contractor at the assembly platform.

Factory made spirally welded pipes are also permitted.

Welding

All components of a standard shell, either straight or bent etc. shall be welded, by use of automatic arc welding machine by Submerged Arc welding process with alternating current. Manual welding shall not be permitted except for sealing runs/ field weld joints and such other minor works at the discretion of the Engineer In-charge. The strength of the joint shall be at-least equal to that of the parent material.

The contractor shall use radiographic quality electrodes and to be carry-out the welding procedure specification (WPS) and Pre-qualification Requirement (PQR). For welding the contractor shall ensure use with standard current and arc voltage required for the machine. For this purpose, samples of welded joints shall be prepared and tested in the presence of the Engineer in-charge. The values once determined shall be maintained throughout the work and if any modifications are to be made, a written permission of the Engineer In-charge shall be obtained. In the case of thin sheets, electric arc welding may not give satisfactory results, and gas welding shall be resorted to. Gas welding shall be subject to the same specifications and tests as those for electric welds. Welding should be carried out inside as well as outside. The contractor should engage all qualified welder for field welding at least having of 6G level qualification. The contractor should submit such qualified welders list prior taking up welding work.

All welding shall conform to the requirements of IS 4353 latest version



All longitudinal and circumferential joints shall be double welded butt joints. Field joints shall be from outside, with a sealing weld from inside. End preparation for such welding shall conform to IS:2825.

All circumferential welds involving plates of unequal thickness shall be so kept that the inside surfaces of plates match to provide streamlined joints without alteration in the internal diameter. As far as practicable, welding of dissimilar thickness of shells shall be carried out in the shops.

The welding shall be of the best workmanship free from flaws, burns, etc. and the Contractor shall provide for his own electrodes and equipment, ovens to keep the electrodes at the desired temperatures and dry. To maintain a good standard in welding, welders shall have to undergo for testing. Such testing shall be organized by the Contractor before they are entrusted with the job. Qualification standard for welding procedures, welders and welding operation shall conform to the requirements of IS:7307 and IS: 7310 (latest) and/or ASME section-IX (latest). Periodical tests as regards their efficiency shall also be taken at intervals of about 6 months and those found inefficient shall be removed from the job. Only those who pass the test shall be posted on the job. If an incompetent welder has already welded some pipes, all welding done by him previously shall be fully checked by X-ray in addition to the regular X-ray inspections. The defects if any shall be set right to the satisfaction of the Engineer In-charge. All such check tests and rectifications of defects shall be entirely at the cost of the Contractor. No pipes or steel sections shall be erected unless the work of the welder concerned has been proved to be satisfactory. Site welds shall be done by specially selected welders.

A record shall be maintained showing the names of welders and operators who have worked on each individual joint. Hand welding shall preferably be carried out by a pair of welders so that, by observing proper sequence, distortion can be avoided. A joint entrusted to a particular individual or a pair shall be as far as possible, completed by them in all respects, including sealing run. No helper or other unauthorized person shall be permitted to do any welding whatsoever. In case of infringement of above, the persons shall be punished as directed by the Engineer In-charge.

The welded joint after welding should not become brittle or sensitive to blows and there should be no loss of toughness due to welding or heat treatment. The material after welding and heat treatment is to be tougher than the base metal and is to retain its original ductility. No allowance will be made for thinning of weld, and the weld should in no point be less than the nominal thickness of plate.

Upon receipt of the order and prior to the start of fabrication, the Contractor shall submit to the Engineer In-charge for his approval the "welding procedure" he intends to use in the shop work. Similarly, prior to the start of the field welding, procedure for the field welding must be submitted to the Engineer In-charge for his approval. Manual welding shall be adopted only when machine welding is not possible.

Ultrasonic Test of Welded Joints

Minimum 15% of welded length in each pipe (well distributed along the pipe length) at random shall be subjected to ultrasonic test at factory. The acceptance / rejection

criteria shall be as per API 5L (American Petroleum Institute). The ultrasonic test shall be conducted as per relevant ASME code. (American Society of Mechanical Engineering) The person who conducts the test shall have certificate as per ISNT or ASNT Level 2. (American Standards and Testing)

Radiographic test of welded Joints

In case of field joints, minimum 10 % of weld length of each joint at random shall be subjected to radiography test.

In case of failure of joints, the contractor shall be required to carry out radiography of thrice the number of segments failing during the radiography test. Even after such radiography testing, if any one of the segment fails, the contractor shall be required to carry out radiography of full joint.

The weld ripples or weld surface irregularities, on both inside and outside shall be removed by any suitable mechanical process to a degree such that resulting radiographic contact due to any remaining irregularities cannot mark or be confused with that of objectionable defect. The radiograph shall be made in strict accordance with the latest requirements and as per the latest and most efficient technique either with X- ray or Gamma ray equipment.

The photographs are to be marked in such a way that the corresponding portion of the welded seam can be readily identified. All radiographs will be reviewed by the Engineer to identify the defect and determine those which must be removed. Defects that are not acceptable shall be removed by chipping, machining or flame gouging to sound metal and the resulting cavities shall be welded. After rectification, the joint is to be radiographed again to prove the quality of the repair. The radiographs will be judged as acceptable or unacceptable by the Engineer In-charge based on the latest standards prescribed by Indian Standard specification.

All X-ray shall be made with equipment and by personnel furnished by the Contractor. Films shall be developed within 24 hours of exposure and always be readily accessible for inspection by the Engineer In-charge. The Contractor shall provide for the use of the Engineer In-charge suitable X-ray viewing equipment. X-ray films shall be properly maintained by the Contractor and shall be handed over to the department on completion of the Contract. All films shall be identified by the no. and chart prepared indicating location of the joint each X-ray photo represents. In the event of additional radiographic inspections required of any work associated with the pipe erection, such inspection shall be performed by the Radiographer at the discretion of the Engineer In-charge.

Radiographic Inspection

General

The Engineer shall assure himself that the welding procedure employed in the construction of pipes has been qualified. The Contractor shall submit evidence to the Engineer In-charge that the requirements have been met. The Contractor shall certify that the welding of pipes has been done only by qualified welders and welding operators, and the Engineer In-charge shall ensure himself that only qualified welders

and welding operators have been used.

The Contractor shall make available to the Engineer In-charge a certified copy of the records of the qualification tests of each welder and welding operator. The Engineer In-charge shall have the right at any time to call for and witness tests of welding procedure or of the ability of any welder and welding operator.

Radiographic Inspection of Welded Joints

All welded joints are to be radio graphed and shall be examined in accordance with:

Code	Description
IS : 2595-1978	Code of Practice for Radiographic Testing
IS : 4853-1982	Recommended Practice for Radiographic Inspection of Fusion Welded Butt joints in Steel Pipes.
IS : 1182-1983	Recommended Practice for Radiographic Examination of Fusion Welded Butt-Joints in steel plates.(second revision)
IS :2598-1966	Safety Code for Industrial Radiographic Practice.

The reinforcement on each side of all butt-welded joints shall not exceed 1.5 mm.

A complete set of radiographs and records as described in IS:2595 Clause 14, for each job shall be retained by the Contractor and kept on file for a period of at least five years.

Radiographers performing radiograph shall be qualified in accordance with SNT-TC-1A. Supplements and Appendices "Recommended Practice for Non-destructive Testing Personnel Qualification and Certification" published by the American Society for Non- destructive testing as applicable for the technique and methods used.

Final acceptance of radiographs shall be based on the ability to see the prescribed penetrometer image and the specified hole.

Sections of welds that are shown by radiography to have any of the following types of imperfections shall be judged unacceptable and shall be repaired.

- any type of crack, or zone of incomplete fusion or penetration,
- any elongated slag inclusion which has length greater than 6 mm,
- any group of slag inclusion in line that have an aggregate length greater than thickness in a length of 12 times thickness, except when the distance between the successive imperfections exceeds 6L where L is the length of the longest imperfection in the group
- Rounded indications in excess of that specified by the acceptance standards given earlier

Destructive Test

The destructive test of pipe joints on the field shall be carried out as per IS 3600. For every 2 km length of pipeline laid, one destructive test of field joint shall be carried out.



1. The welded joints shall be tested for Tensile test, Bend test & tree-panned plug in accordance with procedure laid down in IS No. 3600 of 1966 and latest version of all part of the code "Code of procedure for testing of fusion welded joints and weld metals in steel".
2. Test pieces shall be taken by the contractor from the welded joints at the position on fabricated pipes pointed out by the Engineer in-charge.
3. The sample so taken shall then be cut to the exact shape and dimensions and machined as described below and handed over to the Engineer-in-charge for testing.

Tolerance

The shell in the completed work shall be substantially round. The difference between maximum and minimum inside diameters at any cross section shall not exceed 1% of the nominal diameter of the cross section under consideration subject to a maximum of 10 mm.

Straight pipes shall have their faces perpendicular to the axis of the section with a maximum deviation of 2 mm on either side of the plane. Pipe ends shall be sleeve/swaged ended as per IS-3589 and/or IS-5504.

For the shell thickness, no negative tolerances are acceptable.

Shop Testing

After fabrication, but before application of protective coatings all pipes and specials shall be subjected to a shop hydraulic test. Standard lengths of pipes shall be directly subjected to test and non-standard pipe, and elbows can be tested as standard pipe before being cut to size.

The Hydraulic test pressure for individual pipe in the factory shall be as per IS: 3589 (refer latest version).

Prior to testing, the pipe shall be inspected thoroughly and all the apparent defects in welding such as jumps, porosity etc. shall be repaired by gouge and re-welding.

The hydraulic test shall be carried out under cover at the fabrication shop, in the presence of and to the satisfaction of the Engineer In-charge or the inspection agency appointed by the Employer.

For indicating the pressure inside the pipe an accurate pressure gauge of approved make duly tested and calibrated for the accuracy of readings shall be mounted on one of the closures, which close the pipe ends.

The pressures shall be applied gradually by approved means and shall be maintained for at least 5 seconds or till the inspection of all welded joints is done during which time the pipe shall be hammered throughout its length with sharp blows, by means of a 1 Kg hand hammer.

The pipe shall withstand the test without showing any sign of weakness, leakage,



oozing or sweating. If any leak or sweating is observed in the welded joints, the same shall be repaired by gouging and re-welding after dewatering the pipe. The repaired pipe shall be re-tested to conform to the specified pressure.

If any leak or sweating is observed in pipe shell the pipe under test shall be rejected temporarily. The Contractor shall stack such rejected pipes separately in his yard. The Engineer In-charge shall inspect the same and after taking cuts, if necessary, shall determine the nature of repairs to be carried out thereon and shall then decide as to how and where they shall be used. No payment shall be made for handling or carrying out repairs, but payment for the fabrication and hydraulic testing of the pipe shall be released only after acceptance of the pipe with necessary repairs and subsequent testing etc. are carried out by the Contractor to the satisfaction of the Engineer In-charge. The Engineer In-charge shall be supplied with two copies of the results of all the tests carried out.

Submission of Daily Progress Report

The Contractor shall submit to the Engineer In-charge a daily progress report in the Performa approved by the Engineer In-charge, wherein all the details of the work carried out in the factory shall be fully recorded. Similarly, works done in the various units in the factory shall be separately mentioned. The Contractor shall maintain a register of all the finished materials giving dates of carrying out important operations such as testing, transport, etc. The register shall be presented at least once a week to the Engineer In-charge who shall initial the entries after verification.

Transportation of Pipes, Specials, etc.

All pipes and specials fabricated in the factory and temporarily stacked in the Contractor's yard shall be transported to the site of laying after cleaning them internally etc. The loading in the factory shall be carried out by means of either a crane, gantry or shear legs, so as not to cause any damage to the finished material. Similarly, while unloading and stacking, great care shall be taken to ensure that the material (pipe & special) is not damaged or dented. The contrivances to be used for unloading will be different in different situations and in each case the one approved by the Engineer In-charge shall be adopted. The material stacked at site shall be jointly inspected by the Engineer In-charge and the Contractor and defect or damage noticed shall be repaired to the satisfaction of the Engineer In-charge before payment is admitted.

Props of approved designs shall be fixed to the pipes during transit to avoid undue sagging and consequent distortion. After the pipes are carefully stacked, props may be removed and re-used for subsequent operations. The stacking ground, both in the Contractor's yard and at the site of laying shall be selected in such a way as not to get waterlogged during monsoon. If this cannot be done, the pipes shall be supported on sleepers to avoid contact with wet earth and subsequent rusting. In order to prevent sagging during transit, savings of steel plates can be utilized by cutting to the required length and tacking the same to the pipe ends, in place of props, if approved by the Engineer In-charge.

As explained in earlier paragraphs, materials such as pipes, tapers, etc. may be



transported to the site of laying as soon as the material is finished in all respects with the permission of the Engineer In-charge to avoid congestion in the Contractor's yard. However, materials such as expansion joints, composite bends, 'T' branches and other complicated materials shall be stacked in the Contractor's yard until they are required for laying in the field. In view of this, the work of fabrication of such materials shall be properly synchronized as far as possible with the laying operations.

Fabricated materials such as manhole covers, appurtenances, bolts, nuts, distance pipes, flanges, saddles, collars bypass arrangements etc. shall be transported to the site of laying from the fabrication shop according to the needs of the laying operations only. In regards access roads, the Contractor shall note that access road may lead up to some points on the alignment the Contractor shall have to make his own arrangement for connecting approaches to transport the pipes cross country to the actual site of laying at his own cost. Whatever may be the mode of transport he uses it shall be incumbent on the Contractor to carry and stack the pipes and specials along the alignment as close as possible to the site of laying.

Procedure for receiving Steel Pipes

General

To ensure that the work of erecting pipes is not held up at any stage and place, the Contractor shall maintain an adequate stock of standard specials, flange rings, plug plates, manhole covers, etc. and short length of smaller diameter pipelines, etc. at site in his field stores, in consultation with the Engineer. Wherever possible, the Contractor shall arrange one full month's requirement of pipes, specials, etc. stacked along the alignment.

Stacking of pipes, etc. and Inspection

The Contractor shall keep in each section a responsible representative to take delivery of the pipes, specials and appurtenances, etc. transported from the fabricating stockyard or received from any other work site to the site of laying and to stack along the route on timber skids. Padding shall be provided between coated pipes and timber skids to avoid damage to the coating. Suitable gaps in the pipes stacked shall be left at intervals to permit access from one side to the other. The pipes, specials, appurtenances so received on site shall be jointly inspected and defects recorded, if any, such as protrusions, grooves, dents, notches, damage to the internal coating etc. shall be pointed out immediately to the Engineer In-charge at the site and in the acknowledgement challans. Such defects shall be rectified or repaired to the satisfaction of the Engineer In-charge entirely at the Contractor's risk and cost.

Handling of Pipes, Specials, Appurtenances, etc.

It is essential to avoid damage to the pipes, fittings and specials, etc. or their coatings at all stages during handling. The pipes and specials shall be handled in such a manner as not to distort their circularity or cause any damage to their surface treatment. Pipes shall not be thrown down from the trucks, nor shall they be dragged or rolled along hard surfaces. Slings of canvas or equally non-abrasive materials of suitable width of special attachment shaped to fit the pipe ends shall be used to lift and lower coated pipes to prevent damage to the coating.



Great care shall be taken in handling the pipe right from the first operation of manufacture until they are laid and jointed. The Contractor will provide temporary props in order to prevent any sagging of the pipes while they are stacked in their yard and while transporting to the site of delivery, i.e. laying. The props shall be retained until the pipes are laid. If at any time these props are found to be dislodged or disturbed, the Contractor shall immediately reinstate them in such a way that the true shape of the pipe shell or specials is maintained to the satisfaction of the Engineer In-charge. No defective or damaged pipe or special shall be allowed to be used in the work without rectification to the satisfaction of the Engineer In-charge. Any damage to the coating shall be repaired by the Contractor at his own cost to the satisfaction of the Engineer In-charge.

Dents

Whenever any dent, i.e. a significant alteration of the curvature of the pipe shell is noticed, the depth of the dent shall be measured between the lowest point of the dent and the pipe shell curvature line. All dents exceeding 2 percent of the outer diameter of the pipe shall be removed by cutting out a cylindrical portion of the pipe and replacing the same by an undamaged piece of the pipe. The Engineer In-charge may permit insert patching if the diameter of the patch is less than 25 percent of the nominal diameter of the pipe. Repairs by hammering with or without heating shall not be permitted. Any damage to the coating shall also be carefully examined and rectified.

Marking

The component parts of the pipes shall be carefully marked for identification in the field. The marking shall be on the side, which will be the inside of the pipe after bending.

The marking operation shall be conducted with full size rulers and templates. Only blunt nose punches should be used.

The plates used for fabrication of pipes shall be laid out in such a way that when the shells are completed one set of original identification markings for the material will be plainly visible. In case these markings are unavoidably cut out, they shall be accurately transferred by the Contractor to a location where these markings will be visible on the completed work.

After hydraulic tests on the specials and other items, the number of the shell in the line as it will be erected and the direction of flow shall be stamped in a prominent manner on each piece.

A register shall be maintained in suitable proforma giving the following information for each shell tested:

- i. Serial No.
- ii. Shell No.
- iii. Date of test
- iv. Thickness and specification of steel
- v. Weight of shell tested



- vi. Maximum test pressure
- vii. Details of test performance
- viii. Details of radiographic examination of welds
- ix. Name of Engineer's representative witnessing tests

A copy of these details shall be furnished to the owner at free of cost. No separate payment will be made for these markings and the rates for the items concerned shall be deemed to include the cost of such markings.

Mode of payment :

The payment shall be made on Running Meter basis.

Item No. 17

HOUSE SERVICE CONNECTION

Item No. 17(A)

Providing, Supplying and laying Blue MDPE (medium density polyethylene) pipes conforming to ISO 4427:1996 manufactured from virgin resin PE 80 Food grade compounded Raw Material having Blue Colour only with quality assurance certificate from quality agencies like CIPET (India) and other recognised agencies for usage in Drinking Water System. The cost shall include testing of all materials, Inspection charges, transportation up to site, transit insurance, loading, unloading, stacking etc. complete. The item also including compression fitting conforming to ISO/DIS 14236 such as female adopter, elbow, bend, reducer, Tee required for house service connection inclusive of all taxes, insurance, transportation, freight charge, inspection charges, hydro testing etc. complete. The item also includes dismantling of asphalt / metal road, excavation, refilling, watering, ramming, consolidating and restoration of road etc. complete.

- (i) **25 mm dia. (for 20 mm connection)**
- (ii) **32 mm dia. (for 25 mm connection)**
- (iii) **50 mm dia. (for 40 mm connection)**

MDPE pipe PE-80 shall conform to ISO-4427. Bidder shall supply the required diameter and length of pipe ISI marks at his cost. The pipe end shall be cut at right angle to the pipe axis. Each pipe shall be clearly and indelibly marked. The rate shall be inclusive transportation at site.

Raw Material

Raw material used to Manufacture MDPE Blue Pipes shall be Virgin Natural Resin PE 80 containing those antioxidants, UV Stabilisers & Pigments necessary for Manufacturing of pipes. The Density of Pipes shall be in the Range 0.926 to 0.940 g/cm³ confirming to ISO 4427 Standard. The PE 80 Resin shall have MRS of 8 Mpa.

**Effects on Water Quality :**

The MDPE PE 80 Blue Pipes shall confirm to clause 3.5 of ISO 4427 for conveyance of Water for Human Consumption. Also, the pipes intended for conveyance of Potable water for Human consumption to be tested to comply with BS 6920 specifications in any of the laboratories like DVGW/KIWA/SPGN/WRC-NSF and certificate of compliance to be produced for the following parameters

- a. Odour & Flavour of Water
- b. Appearance of Water
- c. Growth of Micro Organism
- d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)
- e. Extraction of Metals

Pressure Rating:

The Pressure rating of MDPE Blue PE 80 Pipes shall be confirming to Clause 4.1 of ISO 4427 : 1996.

Colour of Pipes:

The Colour of MDPE PE 80 Pipes shall be BLUE confirming to Clause 3.2 of ISO 4427 : 1996.

Dimensions:

The pipe dimensions shall be as per latest revisions of Clause 4.1 of ISO 4427 : 1996 and pipes up to diameters 32 mm shall be supplied in Coils of 300 mtrs. The internal diameter, wall thickness, length and other dimensions of pipes shall be as per relevant tables of ISO 4427:1996. Each pipe shall be of uniform thickness throughout its length.

The wall thickness of the PE 80 Pipes shall be as per ISO 4427.

The dimension tolerances shall be as per ISO 4427 clause 4.1.3

Performance requirements

The Pipe supplied should have passed the acceptance test as per ISO 4427. The manufacturer should provide the test certificates for the following tests.

1. Melt Flow Rate
2. Density,
3. Oxidation and Induction test,
4. Hydrostatic Test ,
5. Pigment dispersion Test,
6. Longitudinal Reversion Test.

These tests should be performed in the in-house laboratory of the pipe manufacturer. The Employer will depute Third Party Inspection Agency to the pipe manufacturing facility of the manufacturer to inspect the pipes as per QAP approved by Engineer In charge.



TECHNICAL SPECIFICATIONS FOR COMPRESSION FITTINGS

90 DEG COMPRESSION ELBOW WITH METAL INSERT

One end of the Metal threaded compression Elbow will be with Taper male threads & other end will have compression fitting suitable to connect to PE pipe. The Taper male threads will be pressure tight. Pressure rating will be PN16.

Body, Nut and Thrust Ring will be injection moulded from Polypropylene and UV stabilized body & thrust ring black in colour, Nut blue in colour. Lip gaskets in Food safe Rubber (NBR) black colour must have a conical shape on inside of gasket for easy insertion of pipe & with two lips on bottom to guarantee good sealing. Use of O ring not permitted. Clamp ring material will be Polyacetal (POM) white coloured and shall not be connected to thrust ring. Male threaded part will be made of SS 304. The product will be tested as per below

Type test	Standard
Dimensions of the threads	ISO 7/1
Tightness of the joints	ISO 3458
Tightness of the joints when subjected to bending	ISO 3503
Resistance to pull-out	ISO 3501
Internal under-pressure test	ISO 3459
Long term pressure test	ISO/DIS 14236

90 DEG COMP ELBOW with COMPRESSION JOINT BOTH ENDS

The Compression Elbows will have compression ends in both sides, so that PE pipes can be connected at both ends. Pressure rating will be PN 16.

Body, Nut and Thrust Ring will be injection moulded from Polypropylene and UV stabilized body & thrust ring black in colour, nut blue in colour. Lip gaskets in Food safe Rubber (NBR) black colour must have a conical shape on inside of gasket for easy insertion of pipe & with two lips on bottom to guarantee good sealing. Use of O ring not permitted. Clamp ring material will be Polyacetal (POM) white coloured and shall not be connected to thrust ring.

The product will be tested as per below

Type test	Standard
Dimensions of the threads	ISO 7/1
Tightness of the joints	ISO 3458
Tightness of the joints when subjected to bending	ISO 3503
Resistance to pull-out	ISO 3501
Internal under-pressure test	ISO 3459
Long term pressure test	ISO/DIS 14236



FEMALE THREADED ADAPTER with METAL OFFTAKE

One end of the Female adaptor with metal off take will be with female threads & other end will have compression fitting suitable to connect to PE pipe. The Taper male threads will be pressure tight. Pressure rating will be PN16.

Body, Nut and Thrust Ring will be injection moulded from Polypropylene and UV stabilized body & thrust ring black in colour, Nut blue in colour. Lip gaskets in Food safe Rubber (NBR) black colour must have a conical shape on inside of gasket for easy insertion of pipe & with two lips on bottom to guarantee good sealing. Use of O ring not permitted. Clamp ring material will be Polyacetal (POM) white coloured and shall not be connected to thrust ring. Female threaded part will be made of SS 304.

The product will be tested as per below:

Type test	Standard
Dimensions of the threads	ISO 7/1
Tightness of the joints	ISO 3458
Tightness of the joints when subjected to bending	ISO 3503
Resistance to pull-out	ISO 3501
Internal under-pressure test	ISO 3459
Long term pressure test	ISO/DIS 14236

The pipe and fitting shall be lowered, laid and joint using electro-fusion process and hydraulic testing shall be done as specified above in electro-fusion fitting.

Or

Compression fittings used for House service connection comply as per ISO 14236

Material of Construction

Compression fittings material shall confirm to ISO14236.Clause -5.

- a .Body-Polypropylene
- b. Nut / Cap –Polypropylene.
- c. Clip Ring-POM (Acetylic resin)
- d. Packing bush- Polypropylene
- e. “O” ring – NBR
- f. Threaded metal inserts –SS 304 with BSP Threads

Pressure testing

The pressure rating of compression fittings as per clause 8 of ISO 14236 which shall be PN16

Dimensions:

The Dimension of compression fittings shall be as per clause 7.1 of ISO 14236



Performance requirements

The compression fittings shall be tested as per ISO 14236. Following Test methods shall be performed.

- | | | |
|----------------|---|--|
| Clause 8.2.1 | - | Leak tightness under internal pressure. |
| Clause 8.2.2 | - | Resistance to Pull out. |
| Clause 8.2.3 | - | Leak tightness under Internal Vacuum. |
| Clause 8.2.4 | - | Long term Pressure Test for Leak tightness for assembled joint |
| Clause 8.3.2.1 | - | MRS Value as per ISO 9080 |
| Clause 8.3.3.1 | - | Resistance to Internal pressure. |

Effects on Quality of Water

The Compression fittings for intended for conveyance of Potable water for Human consumption to be tested to comply with BS 6920 specifications in any of the laboratories like DVGW / KIWA / SPGN / WRc –NSF and certificate of compliance to be produced for the following parameters :

- a. Odour & Flavour of Water.
- b. Appearance of Water.
- c. Growth of Micro Organism
- d. Extraction of substances that may be of concern to Public Health (Cyto Toxicity)
- e. Extraction of Metals.

For clear identification of the water services, the nuts of the fittings should be coloured blue while the body to be black. All fittings with threaded ends should be with BSP threads.

Excavation

General

Any soil which generally yields to the application of pickaxes and shovels, phawaras rakes or any such ordinary excavating implement or organic soil, gravel, silt and turf loam, clay, peat etc. fall under this category.

Clearing the site

The site on which the structure is to be built shall be cleared, and all obstructions, loose stone, materials and rubbish of all kinds, bush, wood and trees shall be removed as directed. The materials so obtained shall be property of the Government and shall be conveyed and stacked as directed within 50 m. lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt.

The rate of side clearance is deemed to be included in the rate of earthwork for which no extra will be paid.

**Setting out**

After clearing the site, the centre lines will be given by the Engineer in charge. The contractor shall assume full responsibility for alignment, elevation and dimension of each and all parts for the work. Contractor shall supply labours, materials, etc. required for setting out the reference marks and benchmarks and shall maintain them if required and directed.

Excavation

The excavation in foundation shall be carried out in true line and level and shall have the width and depth as shown in the drawings or as directed. The contractor shall do the necessary showing and shutting or providing necessary slopes to a safe angle, at his own cost. The payment for such precautionary measures shall be paid separately if not specified. The bottom of the excavated area shall be levelled both longitudinally and transferely as directed by removing and watering as required. No earth filling will be allowed for bringing it to level, if by mistake or any other reason excavations is made deeper or wider than that shown on the plan or directed. The extra depth or width shall be made up with concrete of same proportion as specified for the foundation concrete at the cost of the contractor. The excavation upto 1.5 m. depth shall be measured under this item.

Disposal of the excavated stuff

The excavated stuff of the selected type shall be used in filling the trenches and plinth or levelling the ground in layers including ramming and watering etc.

The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead up to 50 m. and all lift.

Dismantling of asphalt / metal road

Under this item contractor shall demolish existing asphalt or WBM / CC pavement met with during laying pipe.

Only area of pavement intercepted in pipe laying shall be demolished. If excess area is demolished same shall be reinstated by the contractor.

Demolished material like asphalt pavement lump and metal shall be stacked separately as directed by the Engineer in charge.

Work done to the extent of requirement for laying of drain and as per specifications shall be measured in sq.m. and paid at the tender rate.

Mode of measurements and payment

The description of each item shall, unless otherwise stated, be held to include where necessary, conveyance, and delivery, handling, unloading, storing, fabrication, hoisting, all labour for finishing to required shape and size, setting, fitting in position, straight, cutting and waste, return of packings etc.

The length shall be measured on running metre basis of finished work. The length



shall be taken along the centre line of the pipe and fittings. The pipes fixed to walls, ceiling, floors etc. shall be measured and paid under this item.

All the work shall be measured in decimal system as fixed in its place, subject to tolerance given below unless otherwise stated.

- (i) Dimensions shall be measured to the nearest 0.01 metre.
- (ii) Area shall be worked out to the nearest 0.01 sq.metre.

All measurements of cutting shall unless otherwise stated be held to include the consequent waste.

In case of fitting of unequal bore, the largest bore shall be measured for the test.

Testing of pipelines, fittings and joints include for providing all plant and appliances necessary for obtaining access to the work to be tested and carrying out the tests.

The rate includes all the electro-fusion fittings such as female adopter, elbow, bend, reducer, coupling etc. required for the water meter connection.

The payment shall be made as per number basis.

Item No. 17 (B)

Providing, Supplying and fixing of Clamp Saddle (DI Strap Saddle) for House Service connections from metal pipe Water Distribution mains shall be of fastened strap type with threaded outlet for service connection. Clamp Saddle shall be suitable for nominal size of distribution mains pipeline. The strap shall be elastomer coated (insulated) type for firm grip on pipe as well as to protect the coating on the pipe and to insulate the unidentical metals. The saddle shall be single strap type up to pipe sizes of NB 600 and service outlet 15mm, 20mm & 25mm. Fasteners shall be of threaded nutbolt- washer type. The sealing between the saddle and mains shall be obtained by using a profiled elastomer seal matching to the curvature of the pipe. The seal shall be of elastomer type, suitable for all potable water application. The material of construction of the body, straps, fasteners etc, shall be of non-corrosive material such as engineering plastic (PE/PP) or stainless steel or a combination of both.

HOUSE SERVICE CONNECTION (3/4") 25mm
 HOUSE SERVICE CONNECTION (1") 32mm
 HOUSE SERVICE CONNECTION (1.1/2") 50mm

DI Strap Saddle required for providing house service connections on DI/CI mains.

General specification:

Strap saddles shall be suitable for CI/DI pipes of nominal size 60 mm to 300 mm with nominal outlet connection size from 1/2", 3/4" & 1" BSP female thread.

The body shall be Resicoat® epoxy coated with thickness >250 micron as per GSK



standard & EN14901. The saddles shall be single type up to pipe sizes of NB 300 and service outlet of ½", ¾" and 1" BSP female thread.

Fasteners shall be of threaded nut-bolt-washer type. Nut-bolts of size 1/2" (M12) shall be used.

Saddle strap shall be with NBR protection rubber.

The sealing between the saddle and mains shall be obtained by using a profiled elastomeric seal matching to the curvature of the pipe. The seal shall be of NBR elastomeric type, suitable for all potable water applications.

The clamp saddles shall be suitable for online tapping with spatula & drilling tool, maximum working pressures up to 16 bars.

Material and Design Specifications:

Saddle body: DI GGG40 with Resicoat® epoxy (for corrosion protection of fittings) coating with length 172 mm, width 75 mm, height 67 mm & thread depth 24.5mm. The body shall have retaining cavity housing for internal and external retention of the elastomeric seal. Sealing shall be achieved by pressure exerted by the body while fastening the saddle straps & body on the pipe.

Saddle strap: Saddle straps shall be made of stainless steel 304 grade, gauge 16 & width 40mm to prevent corrosion over the long service life & should be with no weld joint to avoid inconsistency of strength. Strap Protection Rubber: NBR UV protected Elastomeric (rubber) shall be such that none of the Stainless-Steel Strap is in direct contact with the pipe. It shall ensure a firm nonslip grip mounting on the pipe due to external loading.

Saddle seal: It shall be virgin rubber NBR Class 70 complying with EN 682-2002. It shall be of type pressure activated hydro-mechanical design. It shall be contoured gasket to provide a positive initial seal which increases with increase in the line pressure. Gasket shall be, with the outlet section having O-ring contacting the saddle body.

Nuts – Bolts- Washer: Stainless Steel Type 304, NC rolled thread, Tightening torque for ½" (M12) nut-bolt: 14-15 kg m.

OR

Specifications for Clamp Saddle for Service Connections

General Specifications:

Clamp saddles for service connection from water distribution mains shall be of wrap around design, wide skirt and wide straps support, which shall reinforce the pipe while providing excellent stability to the saddle.

Clamp Saddles for service connections shall be of fastened strap type with threaded



outlet for service connection.

The service connection threading sizes shall be conforming to IS: 554

Clamp saddles shall be suitable for DI pipes of nominal size 3" (NB 80) to 12" (NB 300) with nominal service connection size from 1/2" (NB 15), 3/4" (NB 20), 1" (NB 25), 1 1/4" (NB 32), 1 1/2" (NB 40) and 2" (NB 50).

The straps shall be elastomer coated (insulated) type for firm grip on pipe as well as to protect the coating on the pipe and to insulate the un-identical metals. The saddles shall be single strap type up to pipe sizes of NB 600 and service outlet of 1/2", 3/4" and 1".

The saddles shall be double strap type for pipe sizes above NB 600 or when the service outlet is 1 1/4", 1 1/2" or 2".

Fasteners shall be of threaded nut-bolt-washer type. Nut-bolts of size 1/2" (M12) shall be used for saddles of size up to 4" (NB 100) and Nut-bolts of size 5/8" (M16) shall be used for saddles of size 6" (NB 150) and above.

The sealing between the saddle and mains shall be obtained by using a profiled elastomer seal matching to the curvature of the pipe.

The seal shall be of elastomer type, suitable for all potable water applications.

The Material of construction of the body, straps, fasteners etc. shall be of a non-corrosive material such as engineering plastic (PE/PP) or stainless steel or a combination of both.

The design of the saddle body should be such that, the service connection outlet metal insert shall project out towards pipe side and align with the hole drilled on the pipe to ensure positive locking against rocking or creeping on the pipe, as might be caused by vibration, pressure or excessive external loading.

The clamp saddles shall be suitable for maximum working pressures up to 10 bars.

Material and Design Specifications:

Saddle Body: Noncorrosive Engineering Plastic body moulded with Stainless steel threaded metal insert for tapping outlet. Also, the stirrup metal plate shall be duly embedded in the plastic body, except at the place of nut-bolt lugs. Threading size and dimensions shall conform to IS: 554. The body shall have retaining cavity housing for internal and external retention of the elastomeric seal. Sealing shall be achieved by pressure exerted by the body while fastening the saddle straps & body on the pipe.

Saddle Strap: Saddle straps shall be made of stainless steel 304 grade to prevent corrosion over the long service life.

Strap Insulation: Elastomeric (rubber) insulation / lining shall be such that none of the



Stainless-Steel Strap is in direct contact with the pipe. It shall ensure a firm nonslip grip mounting on the pipe to prevent the saddle from rocking or creeping on the pipe, as might be caused by vibration, pressure or excessive external loading.

Saddle Seal: It shall be virgin rubber SBR Grade 30 / NBR (NSF 61 approved). It shall be of type pressure activated hydro-mechanical design. It shall be contoured gasket to provide a positive initial seal which increases with increase in the line pressure. Gasket shall be gridded mat, with tapered ends, with the outlet section having O-ring contacting the saddle body multiple O-rings contacting the pipe, preferably with a Stainless-steel reinforcing ring insert moulded to prevent expansion under pressure.

Nuts-Bolts- washer: Stainless Steel Type 304, NC rolled thread, Tightening torque for ½" (M12) nut-bolt: 14-15 kg.m and for 5/8" (M 16) nut-bolt: 21-23 kg.m

The payment shall be made as per number basis.

Item No. 17 (C)

Providing and fixing brass ferrule of approved make of following sizes inclusive of all taxes, insurance, transportation etc. complete.

- (i) 20 mm dia
- (ii) 25 mm dia
- (iii) 40 mm dia

The brass ferrule shall be best quality and make as approved by Engineer-in-charge.

The work shall be carried out in good workmanship manner as directed by the Engineer-in-charge with proper fixing of ferrule as required.

The payment shall be made as per number basis.

Item No. 17 (D)

Providing, Supplying and fixing of PVC Ball Valves in PN16 rating with one end compression using Blue colour compression nut in polypropylene material & other end with female threads conforming to ISO:4422-4, certified from certified agencies suitable for food products & drinking water, female threads in accordance with ISO:7/BS:21/ IS: 554 and shall be inclusive of all cost of testing of all materials, inspection charges, transportation up to site, transit insurance, loading, unloading, stacking etc. complete. The item includes supplying & fixing of valve box
PVC Ball Valve with Compression & Female Threads

32x25 mm

40x32 mm

63x50 mm

The PVC Ball Valve shall be best quality and make as approved by Engineer-in-charge.

The work shall be carried out in good workmanship manner as directed by the Engineer-in-charge with proper fixing of ferrule as required.

The payment shall be made as per number basis.



TECHNICAL SPECIFICATIONS SEWERAGE NETWORK

Item No. 1

Earth work in excavation for foundation, trenches for pipes / cables or drains etc. by mechanical means / manual means (exceeding 30cm in depth.) including ramming of bottom, dressing of sides, disposal of excavated earth including of all lift and lead up to 50m. Disposed earth to be levelled and neatly dressed.

All kinds of ordinary soil

- a. Up to 1.5m depth
- b. 1.5m to 3.0m depth
- c. 3.0m to 4.5m depth
- d. 4.5m to 6.0m depth
- e. 6.0m to 7.5m depth
- f. 7.5m to 9.0m depth
- g. 9.0m to 10.5m depth
- h. 10.5m to 12.0m depth

General

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

Clearing the site

The site on which the structure is to be built shall be cleared, and all obstructions loose stone, materials and rubbish of all kind bush wood and trees shall be removed as directed the materials so obtained shall be property of the Government and shall be conveyed und stacked as directed within 50 m lead. The roots of the trees coming in the sides shall be cut and coated with a hot asphalt.

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

Setting out

After clearing the site the centre lines will be given, by the Engineer-in-charge. The contractor shall assume full responsibility for alignment, elevation and dimension of each and all 'parts of the work. Contractor shall supply labours materials, etc. required for setting out the reference marks and bench 'marks and shall maintain them as long as required and directed.

Excavation in All Kinds of Soil:

All excavation operations manually or by mechanical means shall include excavation and 'getting out' the excavated materials. In case of excavation for trenches, basements, water tanks etc. 'getting out' shall include throwing the excavated materials at a distance of at least one metre or half the depth of excavation, whichever is more, clear off the edge of excavation. In all other cases 'getting out' shall include depositing the excavated materials as specified. The subsequent disposal of the excavated material shall be either stated as separate item or included



with the items of excavation stating lead.

During the excavation the natural drainage of the area shall be maintained. Excavation shall be done from top to bottom. Undermining or undercutting shall not be done.

In firm soils, the sides of the trenches shall be kept vertical up to a depth of 2 metres from the bottom. For greater depths, the excavation profiles shall be widened by allowing steps of 50 cm on either side after every 2 metres from the bottom. Alternatively, the excavation can be done to give slope of 1:4 (1 horizontal: 4 vertical). Where the soil is soft, loose or slushy, the width of steps shall be suitably increased, or sides sloped or the soil shored up as directed by the Engineer-in- Charge. It shall be the responsibility of the contractor to take complete instructions in writing from the Engineer-in-Charge regarding the stepping, sloping or shoring to be done for excavation deeper than 2 metres.

The excavation shall be done true to levels, slope, shape and pattern indicated by the Engineer- in- Charge. Only the excavation shown on the drawings with additional allowances for centering and shuttering or as required by the Engineer-in-Charge shall be measured and recorded for payment.

In case of excavation for foundation in trenches or over areas, the bed of excavation shall be to the correct level or slope and consolidated by watering and ramming. If the excavation for foundation is done to a depth greater than that shown in the drawings or as required by the Engineer-in-Charge, the excess depth shall be made good by the contractor at his own cost with the concrete of the mix used for leveling/ bed concrete for foundations. Soft/defective spots at the bed of the foundations shall be dug out and filled with concrete (to be paid separately) as directed by the Engineer-in-Charge.

While carrying out the excavation for drain work care shall be taken to cut the side and bottom to the required shape, slope and gradient. The surface shall then be properly dressed. If the excavation is done to a depth greater than that shown on the drawing or as required by the Engineer-in-Charge, the excess depth shall be made good by the contractor at his own cost with stiff clay puddle at places where the drains are required to be pitched and with ordinary earth, properly watered and rammed, where the drains are not required to be pitched. In case the drain is required is to be pitched, the back filling with clay puddle, if required, shall be done simultaneously as the pitching work proceeds. The brick pitched storm water drains should be avoided as far as possible in filled-up areas and loose soils.

In all other cases where the excavation is taken deeper by the contractor, it shall be brought to the required level by the contractor at his own cost by filling in with earth duly watered, consolidated and rammed.

In case the excavation is done wider than that shown on the drawings or as required by the Engineer-in-Charge, additional filling wherever required on the account shall be done by the contractor at his own cost.

The excavation shall be done manually or by mechanical means as directed by



Engineer-in-charge considering feasibility, urgency of work, availability of labor/mechanical equipment's and other factors involved. Contractor shall ensure every safety measures for the workers. Neither any deduction will be made, nor will any extra payment be made on this account.

Foul Condition:

Filthy and unhygienic conditions where physical movements are hampered such as soil mixed with sewage or night soil.

Lead:

All distances shall be measured over the shortest practical route and not necessarily the route taken. Route other than shortest practical route may be considered in cases of unavoidable circumstances and approved by Engineer-in-charge along with reasons in writing.

Lift:

The vertical distance for removal with reference to the ground level. The excavation up to 1.5 metres depth below the ground level and depositing the excavated materials up to 1.5 metres above the ground level are included in the rate of earth work. Lifts inherent in the lead due to ground slope shall not be paid for.

Protections:

Excavation as directed by the Engineer-in-Charge shall be securely barricaded and provided with proper caution signs, conspicuously displayed during the day and properly illuminated with red lights and/or written using fluorescent reflective paint as directed by engineer in charge during the night to avoid accident.

The Contractor shall take adequate protective measures to see that the excavation operations do not damage the adjoining structures or dislocate the services. Water supply pipes, sluice valve chambers, sewerage pipes, manholes, drainage pipes and chambers, communication cables, power supply cables etc. met within the course of excavation shall be properly supported and adequately protected, so that these services remain functional. However, if any service is damaged during excavation shall be restored in reasonable time, for which no extra payment shall be admissible. Excavation shall not be carried out below the foundation level of the adjacent buildings until underpinning; shoring etc. is done as per the directions of the Engineer-in-Charge for which payment shall be made separately.

Any damages done by the contractor to any existing work shall be made good by him at his own cost. Existing drains pipes, culverts, overhead wires, water supply lines and similar services encountered during execution shall be protected against damage by the contractor. The contractor shall not store material or otherwise occupy any part of the site in manner likely to hinder the operations of such services.

Rates:

Rates for Earthwork shall include the following:

- (a) Excavation and depositing excavated material as specified.
- (b) Handling of antiquities and useful material as specified.
- (c) Protection as specified.



- (d) Site clearance as specified.
- (e) Setting out and making profiles as specified.
- (f) Bailing out or pumping of rainwater from excavations.
- (g) Initial lead of 50 m and lift of 1.5 m.
- (h) Blasting operations for hard rock as specified.
- (I) Lead beyond 50 metres shall be payable in accordance with chapter -1- Transportation.

Mode of measurements & payment:

The measurement of excavation in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-in-charge. No payment shall be made for surplus excavation made more than above requirements or due to stopping and sloping back as found necessary on account of conditions of soil and requirements of safety.

The rates for excavation of trench for laying of sewer line & water line and manhole/ chambers shall cover all site clearances, adequate barricades, construction signs, red lanterns and guards as required, dewatering, scaffolding, timbering, machinery, tools implements and generally of all means used for the fulfilment of these items.

The rate shall be for a unit of one cubic meter

Item No. 2

In or under water and/or liquid mud, including pumping out water as required.

(All water that may accumulate in excavations during the progress of the work from seepage, (not due to the negligence of the contractor), shall be bailed, pumped out or otherwise removed. The contractor shall take adequate measures for bailing and/or pumping out water from excavations and/or pumping out water from excavations and construct diversion channels, bunds, sumps, etc)

- a. 1.5m to 3.0m depth
- b. 3.0m to 4.5m depth
- c. 4.5m to 6.0m depth
- d. 6.0m to 7.5m depth
- e. 7.5m to 9.0m depth
- f. 9.0m to 10.5m depth
- g. 10.5m to 12.0m depth

General

All relevant Specification as per Item no.1. It shall be completed as per the instruction and as directed by engineer in charge.

De-watering shall be done conforming to BIS Code IS: 9759 (guidelines for dewatering during construction) and / or as per the specifications approved by the Engineer-in-Charge. Design of an appropriate and suitable dewatering system shall be the Contractor's responsibility. Such scheme shall be modified / augmented as the work proceeds based on fresh information discovered during the progress of work, at no extra cost. At all times during the construction work, efficient drainage of the site shall be carried out by the Contractor and especially during the laying of plain cement concrete, taking levels, installing rock anchors etc. The Contractor shall also



ensure that there is no danger to the nearby properties and installations on account of such lowering of water table. If needed, suitable precautionary measures shall be taken by the Contractor. Also, the scheme of dewatering adopted shall have adequate built in arrangement to serve as stand-bye to attend, to repair of pumps etc. and disruption of power / fuel supply. Nothing extra shall be payable on this account.

De-watering shall be carried out by suitable means with adequate stand-by arrangements of pumps etc. and it shall be ensured that its disposal is carried out as per the regulations of the local bodies. The water / slush / muck etc. shall not be disposed off into the public drainage system of sewer manhole or storm water drain but shall be pumped off into the creek close to the plot or disposed by any other manner, subject to the approval of the local bodies in this regard. The agencies are, therefore, advised to inspect and acquaint themselves of the site and location of disposal point(s) of water / slush and satisfy themselves as regards method of pumping and disposal required to be adopted. Any default or failure on the part of the Contractor to acquaint him with the aforesaid aspect of work shall not absolve him from his responsibility for the execution / performance of the contract. Also, all permissions in this regard, to be taken from local authorities, shall be obtained by the Contractor. Nothing extra shall be payable on these accounts.

In trenches where surface water is likely to get into cut / trench during monsoons, a ring bund of puddle clay or by any other means shall be formed outside, to the required height, and maintained by the Contractor. Also, suitable steps shall be taken by the Contractor to prevent back flow of pumped water into the trench. Nothing extra shall be payable on this account.

Unless otherwise provided in the item of schedule of quantity, the cost of dewatering or working under water and / or liquid mud for execution of all the items for the work is deemed to be included in quoted rates of the respective items and shall not be measured separately for payment. Nothing extra shall be payable for de-watering in this work, irrespective of whether specified or not, in the item descriptions or in the specifications / conditions in the contract agreement.

Measurement: - The unit, namely, metre depth shall be the depth measured from the level of foul position/ subsoil water level and up to the centre of gravity of the cross-sectional area of excavation done for stonework. Metre depth shall be reckoned correct to 0.1 m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored.

In case stonework in or under foul position is also in or under water and/or liquid mud; extra payment shall be admissible only for the stonework actually executed in or under foul position.

Pumping or bailing out water met within excavations from source and specifically ordered in writing by the Engineer-in-charge shall be measured separately and paid.

Excavation In Water, Mud or Foul Position

All water that may accumulate in excavations during the progress of the work from springs, tidal or river seepage, broken water mains or drains (not due to the negligence of the contractor), and seepage from subsoil aquifer shall be bailed,



pumped out or otherwise removed. The contractor shall take adequate measures for bailing and/or pumping out water from excavations and/or pumping out water from excavations and construct diversion channels, bunds, sumps, coffer dams etc. as may be required. Pumping shall be done directly from the foundation trenches or from a sump outside the excavation in such a manner as to preclude the possibility of movement of water through any fresh concrete or masonry and washing away parts of concrete or mortar. During laying of concrete or masonry and for a period of at least 24 hours thereafter, pumping shall be done from a suitable sump separated from concrete or masonry by effective means.

Capacity and number of pumps, location at which the pumps are to be installed, pumping hours etc. shall be decided from time to time in consultation with the Engineer-in-Charge.

Pumping shall be done in such a way as not to cause damage to the work or adjoining property by subsidence etc. Disposal of water shall not cause inconvenience or nuisance in the area or cause damage to the property and structure nearby.

To prevent slipping of sides, planking and strutting may also be done with the approval of the Engineer-in-Charge.

Classification

The earth work for various classification of soil shall be categorised as under:

Work in or under water and/or liquid mud: Excavation, where water is met with from any of the sources specified in CPWD clause 2.21.1 shall fall in this category. Steady water level in the trial pits before the commencement of bailing or pumping operations shall be the sub-soil water level in that area.

Work in or under foul position: Excavation, where sewage, sewage gases or foul conditions are met with from any source, shall fall in this category. Decision of the Engineer-in-Charge whether the work is in foul position or not shall be final.

Measurements

The unit, namely, metre depth shall be the depth measured from the level of foul position/ sub-soil water level and up to the centre of gravity of the cross-sectional area of excavation done in the conditions classified in CPWD clause 2.21.2. Metre depth shall be reckoned correct to 0.1 m, 0.05 m or more shall be taken as 0.1 m and less than 0.05 m ignored. The extra percentage rate is applicable in respect of each item, but the measurements shall be limited only to the quantities of earth work executed in the conditions classified in 2.21.2.

In case earth work in or under foul position is also in or under water and/or liquid mud, extra payment shall be admissible only for the earth work actually executed in or under foul position.

Pumping or bailing out water met within excavations from the sources specified in CPWD clause 2.21.1 where envisaged and specifically ordered in writing by the Engineer-in-Charge shall be measured separately and paid. Quantity of water shall be recorded in kilolitres correct to two places of decimal. This payment shall be in



addition to the payment under respective items of earthwork and shall be admissible only when pumping or bailing out water has been specifically ordered by the Engineer-in-Charge in writing.

Planking and strutting or any other protection work done with the approval of the Engineer-in-Charge to keep the trenches dry and/or to save the foundations against damage by corrosion of rise in water levels shall be measured and paid for separately.

Bailing or pumping out water, accumulated in excavation, due to rains is included under respective items of earthwork and is not to be paid separately.

Rates:

The rates for respective items described above shall include cost of all the operations as may be applicable.

Mode of measurements & payment:

The rate shall be for a unit of one cubic meter.

Item No. 3

Filling with sand for pipe bedding or over the pipe including supply of sand.

Materials:

Sand shall be as per CPWD specification Vol – I, clause no - 3.1.3.

Workmanship:

The relevant specifications shall be followed as per CPWD specification Vol – I.

Pipe Bedding:

In case where the foundation conditions are unsafe such as in the proximity of trees or poles, under existing or proposed tracks, under manholes etc; the pipe shall be encased, in low strength concrete bedding or compacted sand or gravel.

The following class of pipe beddings are recommended as per CPHEEO manual. The class of bedding depends upon the site condition and loading.

Class A bedding - It may be either concrete cradle or concrete arch depending upon the design.

Class B bedding - It is having a shaped bottom or compacted granular bedding with a carefully compacted back fill.

Class C bedding - It is ordinary bedding having a compacted granular bedding with a lightly compacted back fill.

The pipe bedding materials must remain firm and not permit displacement of pipes. Where rock or other unyielding foundation material is encountered, bedding shall be according to one of the classes A, B or C but with the following additional requirements.



Class A bedding-The hard unyielding material should be excavated down to the bottom of the concrete cradle.

Class B or C bedding- The hard unyielding material should be excavated below the bottom of the pipe and pipe bell to depth of at least 15cm.

The width of trench should be at least 1.25 times the outside dia of pipe and it should be refilled with granular material.

When the pipe is laid in a trench in rock, hard clay, shale or other hard material, the space below the pipe shall be excavated and replaced with an equalising bed of concrete, sand or compacted earth. In no place the pipe shall be laid directly on such hard material.

Mode of measurements & payment:

The measurement of Pipe sand bedding in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-in-charge. The rate includes the cost of collecting, carting sand with all lead and labour for filling the same in plinth, under floors for all lift/ depth.

The rate shall be for a unit of one cubic meter

Item No. 4

Providing and laying in position Plain cement concrete (PCC) of specified grade excluding the cost of centering and shuttering, Cement concrete grade M-15 (Nominal Mix) with 40 mm maximum size of stone aggregate

All materials and Workmanship as relevant specification as per Sub Head no.4 in CPWD Specification Volume 1

Mode of measurements & payment:

The rate shall be for a unit of one cubic meter.

Item No. 5

Providing and erecting 2.00-metre-high temporary barricading at site; each panel of size 2.50 m x2.00 m made of 40x40x6 mm angle iron or 50x50x3 mm hollow MS tube posts/horizontal members/bracings covered with 1.63 mm thick MS sheet. The sheet shall be fixed with 30x5 mm MS flat by suitable welding/riveting. The panels shall be made so that gap of 50cm above the ground is available making overall height as 2.5 m. MS channel ISLC 75 @ 5.70 kg/m, 50 cm long shall be provided at the bottom having oval shaped holes of size 50x25 mm at both ends with 50 cm long MS angle 40x40x6 mm bracing. Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250 mm long expansion fasteners at both ends. The work shall be executed as per drawing/direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in-Charge. The barricading provided shall be retained in position at site continuously including shifting of barricading from one location to another location as many times as required during the execution of the



entire work till its completion. Rates include its maintenance for damages, painting, all incidentals, labour materials, equipment and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge.

(Note: One-time payment shall be made for providing barricading from start of work till completion of work including shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).

The relevant specifications as given in items shall apply to this item.

The rate includes labour, material, equipment, shifting of barricading as per requirement of progress of work and removal the same after completion of work. (All material will be the property of the contractor after completion of the project).

The mode of payment shall be in per Sq.m basis.

Item No. 6

Open timbering in trenches including strutting and shoring complete (measurements to be taken of the face area timbered):

- a. Depth not exceeding 1.5 m.
- b. Depth exceeding 1.5 m but not exceeding 3 m.
- c. Depth exceeding 3 m but not exceeding 4.5 m.
- d. Depth exceeding 4.5 m but not exceeding 6.0 m.
- e. Depth exceeding 6.0 m but not exceeding 7.5 m.
- f. Depth exceeding 7.5 m but not exceeding 9.0 m.
- g. Depth exceeding 9.0 m but not exceeding 10.5 m.
- h. Depth exceeding 10.5 m but not exceeding 12 m.

Planking And Strutting

When the depth of trench in soft/loose soil exceeds 2 metres, stepping, sloping and/or planking and strutting of sides shall be done. In case of loose and slushy soils, the depths at which these precautions are to be taken, shall be determined by the Engineer-in-Charge according to the nature of soil.

Planking and strutting shall be 'close' or 'open' depending on the nature of soil and the depth of trench. The type of planking and strutting shall be determined by the Engineer-in-Charge. It shall be the responsibility of the contractor to take all necessary steps to prevent the sides of trenches from collapse. Engineer-in-Charge should take guidance from IS: 3764 for designing the shoring and strutting arrangements and specifying the profile of excavation.

Close Planking and Strutting

Close planking and strutting shall be done by completely covering the sides of the trench generally with short upright, members called 'poling boards.' These shall be 250x38 mm in section or as directed by the Engineer-in-Charge.

The boards shall generally be placed in position vertically in pairs. One boards on either side of cutting. These shall be kept apart by horizontal wallings of strong wood at a maximum spacing of 1.2 metres cross strutted with ballies, or as directed by Engineer-in-Charge. The length and diameter of the ballies strut shall depend upon

the width of the trench. Typical sketch of close timbering is given in Cpwd Fig. 2.2.

Where the soil is very soft and loose, the boards shall be placed horizontally against the sides of the excavation and supported by vertical 'walling' which shall be strutted to similar timber pieces on the opposite face of the trench. The lowest boards supporting the sides shall be taken in the ground for a minimum depth of 75 mm. No portion of the vertical side of the trench shall remain exposed.

The withdrawal of the timber members shall be done very carefully to prevent collapse of the trench. It shall be started at one end and proceeded systematically to the other end. Concrete or masonry shall not be damaged while removing the planks. No claim shall be entertained for any timber which cannot be withdrawn and is lost or buried, unless required by the Engineer-in-Charge to be left permanently in position.

Open Planking and Strutting

In case of open planking and strutting, the entire surface of the side of the trench is not required to be covered. The vertical boards 250 mm wide & 38 mm thick, shall be spaced sufficiently apart to leave unsupported strips of 50 cm average width. The detailed arrangement, sizes of the timber and the distance apart shall be subject to the approval of the Engineer-in-Charge. In all other respect, specifications for close planking and strutting shall apply to open planking and strutting. Typical sketch of open planking and strutting is given in Cpwd fig. 2.2.

Measurements

The dimensions shall be measured correct to the nearest cm and the area of the face supported shall be worked out in square metres correct to two places of decimal.

Works shall be grouped according to the following:

Depth not exceeding 1.5 m.

Depth exceeding 1.5m in stages of 1.5 m.

Planking and strutting to the following shall be measured separately:

Trenches.

Areas- The description shall include use and waste of raking shores.

Shafts, walls, cesspits, manholes and the like

Where tightly driven close but jointed sheeting is necessary as in case of running sheeting is necessary as in case of running sand the item shall be measured separately and packing of cavities behind sheeting with suitable materials included with the item.

Planking and strutting required to be left permanently in position shall be measured separately.

Rates:

Rates shall include use and waste of all necessary timber work as mentioned above including fixing and subsequent removal.

**Mode of measurements & payment:**

The measurement of timbering in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-in-charge.

The rate shall be for a unit of one square meter.

Item No. 7

Providing, Laying and Jointing non-pressure (NP4) (Sulphate Resistance Cement) RCC socket & spigot pipes with rubber gasket joint including testing of joints.

- a. 250 dia pipe
- b. 300 dia pipe
- c. 450 dia pipe
- d. 600 dia pipe
- e. 900 dia pipe

General

Relevant Specification of Item as per item description & instruction of Engineer-in-Charge, MORTH latest Specification & IS CODE and / or his authorized representative.

All the pipes, specials, joints to be used in the work shall be as per Indian Standards 458 - (Latest Revision) duly inspected and tested and having BIS certification mark. Cement used in the manufacture of Reinforced cement concrete pipes used in sewerage shall conform to IS 12330 (for sulphate resistant cement).

Laying and Jointing shall be as per IS 783: (Latest Revision).

Transportation:

Reasonable care shall be exercised in loading, transporting and unloading concrete pipes. Handling shall be such as to avoid impact. Gradual unloading by inclined plane or by chain block is recommended.

Tests to be conducted at manufacturing units before taking delivery :-

All samples for testing purpose shall be selected at random. Samples of pipes shall be subjected to following test in accordance with IS: 3597: (Latest Revision).

Hydrostatic test:

Three edge bearing test
Permeability test

At the time manufacture of such pipe compressive strength of the concrete cubes shall be tested as per IS : 516: (Latest Revision).

Laying of Pipe:

Pipes shall be lowered into the trench carefully by mechanical appliances. Under no circumstances shall the pipes be dropped or dumped into the trench.



All pipe sections and connections shall be inspected carefully before being laid. Broken or defective pipes or connections shall not be used.

All lumps, blisters and excess coating materials shall be removed gently from the ends of each pipe, and they should be wiped clean and dry before the pipe is laid.

In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid.

Every precaution shall be taken to prevent foreign materials from entering the pipe when it is being placed in the line.

Pipes shall be laid true to line and grade as specified.

Sight rails provided at all change of directions or gradients and at distances of about 15 meters. Straight lengths with centre line marked on each horizontal rail which is fixed at true level, shall be used for laying all inverts with the help of proper boning rods.

Laying of pipes shall always proceed upgrade of a slope. If the pipes have spigot and socket joints, the socket ends shall face upstream. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid.

The pipe shall be secured in place with approved back fill material or concrete tamped under it except at the joint portion.

Precautions shall be taken to prevent dirt from entering the joint space.

At times when pipe laying is not in progress the open ends of pipe shall be closed by a watertight plug or canvas or other means approved by the Engineer in charge.

Trench shall be kept free from water until the material in the joints has hardened.

When the pipe is closed and the trench liable to be flooded by rain, care shall be taken to prevent the pipe from damage.

Walking or working on the completed pipe shall not be permitted until the trench has been back filled to a height of at least 30 cm over the pipe, except as may be necessary in tamping or back filling.

The cutting of pipe for inserting, fittings or closure pieces shall be done in a neat and workmanlike manner without danger to the pipe so as to leave a smooth surface and at right angles to the axis of the pipe.

The connection to an existing sewer shall be done through manholes.

Before connecting a pipe to a manhole, a relieving arch or any other similar protection device should be made in the manhole for the safety of the pipe.

The pipe when laid should not be subjected to super imposed load beyond what the



pipe can safely take up.

Jointing:

The socket and spigot pipes are laid and jointed with rubber gasket.

In case of collar jointed pipe, the jointing shall be done with hemp yarn soaked in cement slurry tamped with just sufficient quantity of water to have a consistency of semi dry condition, well packed and thoroughly rammed with caulking tools and then filled with cement mortar 1:2. The joint shall be finished off with a fillet slopping at 45 degrees to the surface of the pipe. The finished joint shall be protected and cured for at least 24 hours. For jointing procedure should be followed as per I.S. 783 – (Latest Revision).

Testing:

Sampling & testing of pipe shall be done as per IS 458.

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

In case of cement mortar joints, the sewer line shall be tested three days after the cement mortar joints have been made.

The pipeline shall be filled with water for about a week before commencing the application of pressure to allow for the absorption by pipe wall.

The pipeline shall be tested by plugging the upper end with a provision for an air outlet pipe with stop cock. The water shall be filled through a funnel connected at the lower end provided with a plug. After expelling the air through the air outlet, the stop cock shall be closed and water level in the funnel shall be raised to 2.5 m above the invert at the upper end. Water level in the funnel is noted after 30 minutes and the quantity of water required to restore the original water level in the funnel is determined. The pipeline under pressure is then inspected while funnel is still in position. There shall not be any leaks in the pipe or joints (small sweating on the pipe surface is permitted).

Any sewer or part thereof that doesn't meet the test shall be emptied and repaired or re-laid as required and tested again.

The leakage or quantity of water to be supplied to maintain the test pressure during the period of 10 minutes should not exceed 0.2 litres / mm diameter of pipe per Km. length per day.

For non-pressure pipes the leakage should be observed for a period of 24 hours if feasible.

Ex filtration test for detection of leakage shall be carried out at a time when the ground water table is low.

Air testing shall be done particularly in large diameter pipes when the required quantity of water is not available for testing. It is done as per procedure given in

**Mode of measurements & payment:**

The measurement of Pipe in trenches for foundation shall be made according to the shown on the drawing or as per sections given by the Engineer-in-charge.

The rate shall be for a unit of one Running meter

Measurements:

All RCC pipes should be measured according to the work actually done. The measurement for pipes should be in running meter nearest to a cm. of length along the centre line of pipe as actually laid at work site.

Rates:

The rate shall include the cost of the material and labour involved in all the operation described in the items.

Item No. 8

Filling by available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.

Refilling the trenches**Use of selected excavated material**

Filling of excavated material in trenches shall be commenced as soon as the joints of pipes and specials have been hydraulically tested and passed. The backfilling material shall be properly consolidated by watering and ramming, taking due care that no damage is caused to the pipes and the outer coating.

Selected surplus spoils from excavated material shall be used as backfill. Fill material shall be free from clods, salts, sulphate, organic or other foreign material. All clods of earth shall be broken or removed. Where excavated material is mostly rock, the boulders shall be broken into pieces not larger than 150 mm size, mixed with properly graded fine material consisting of murom or earth to fill up the voids and the mixture used for filling.

Filling zones

For the purpose of back-filling, the depth of the trench shall be considered as divided into the following three zones from the bottom of the trench to its top:

Zone A: From the bottom of the pipe (top of bedding) to the level of the centre line of the pipe	Back-filling by hand with selected approved material available from excavation, placed in layers of 150 mm and compacted by tamping. The back-filling material shall be deposited in the trench for its full width on each side of the pipe, specials and appurtenances simultaneously. Special care shall be taken to avoid damage of the pipe and the coating or moving of the pipe.
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Zone B: From the level of the centre line of the pipe to a level 300 mm above the top of the pipe	Back-filling and compaction shall be done by hand or approved mechanical methods in layers of 150 mm; special care shall be taken to avoid damage of the pipe and the coating or moving of the pipe.
Zone C:	Back-filling shall be done by mechanical methods in 15 cm.

All excavations shall be backfilled to the level of the original ground surfaces unless otherwise shown on the drawings or ordered by the Engineer-in-Charge in Charge, and in accordance with the requirements of the specification. The material used for backfill, the amount thereof, and the manner of depositing and compacting shall be subject to the approval of the Engineer-in-Charge in Charge, but the Contractor will be held responsible for any displacement of pipe or other structures, any damage to their surfaces, or any instability of pipes and structures caused by improper depositing of backfill materials.

The back filled layers shall be wetted and compacted to a density of minimum 90 percent of the maximum dry density at optimum moisture content of the surrounding material. Any deficiency in the quantity of material for backfilling the trenches shall be supplied by the Contractor at his expense. The Contractor shall at his own expense make good any settlement of the trench backfill occurring after backfilling and until the expiry of the defect liability period. On completion of pressure and leakage tests exposed joints shall be covered with approved selected backfill placed above the top of the pipe and joints in accordance with the requirements of the above specifications. The Contractor shall not use backfilling for disposal as refuse or unsuitable soil.

Mode of measurements & payment:

The measurement of filling in trenches for foundation shall be made according to the sections of trenches shown on the drawing or as per sections given by the Engineer-in-charge. The rate includes the cost of collecting, carting with all lead and labour for filling the same in plinth, under floors for all lift/ depth.

The rate shall be for a unit of one cubic meter.

Extra for every additional lift of 1.5 m or part thereof in.

Excavation – 1.5m to 3.0m depth

Excavation – 3.0m to 4.5m depth

Excavation – 4.5m to 6.0m depth

Excavation – 6.0m to 7.5m depth

Excavation – 7.5m to 9.0m depth

Excavation – 9.0m to 10.5m depth

Excavation – 10.5m to 12.0m depth

General

All relevant Specification as per Item no.8. It shall be completed as per the instruction



and as directed by engineer in charge.

Mode of measurements & payment:

The rate shall be for a unit of one cubic meter.

Item No. 9

Extra for every additional lead up to 3 km above item no.1 & 8.

Disposal of the excavated stuff

The excavated stuff of the selected type shall be used in filling the trenches and plinth or levelling the ground in layers including ramming and watering etc.

The balance of the excavated quantity shall be removed by the contractor from the site of work to a place as directed with lead from 50 M. to 3 Km. and all lift.

Mode of measurements & payment:

The rate shall be for a unit of one cubic meter.

Item No. 10

Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 900mm and 1055mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI / MS footsteps, supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering, steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15A,B,C,D) {Note:- Only Excavation as per actual shall be paid separately}

Manhole:

- i. Manholes are the Important & essential Items in any Sewerage System. Manhole are classified as:
 - (a) Straight-through manholes, (b) Junction Manholes, (c) Side Entrance Manholes, (d) Drop Manholes, (e) Scraper (Service) Type Manhole, (f) Flushing manholes.
- ii. Manholes are the essential ancillary structure in any sewerage system. They are provided for inspection, testing, cleaning, repairing and removal of obstruction from sewer line.
- iii. Manhole should be built at every change of alignment, gradient or diameter, at the head of all sewer and branches and at every junction of two or more sewers on sewer, which is to be cleaned manually, or which cannot be entered for cleaning or inspection.
- iv. The Maximum spacing of manholes in the sewer are as per CPHHEO manual.

**Manhole Covers & frames:**

The covers and frames shall conform to IS 1726 for cast iron and IS 12592 for pre-cast concrete covers and frames. The size of manhole covers should be such that there should be clear opening of not less than 560mm diameter for manholes exceeding 0.9m depths. The frames of manhole shall be firmly embedded to correct alignment and level in plain concrete. After completion of work, manhole covers shall be sealed by means of thick grease.

Cement in Sewage structure

The surfaces of structures in contact with sewage such as manhole, chambers, wet well, sump etc. shall be constructed with sulphate resistant cement.

Inverted siphon

When it is found necessary to cross obstruction like nallah by sewers line that shall be crossed by Inverted Syphon i.e. by laying the sewer under the obstruction (nallah) and regaining as much elevation as possible after the nallah is passed. As the siphons are depressed below the hydraulic grade line, maintenance of self-cleaning velocity at all flows is very important. Two considerations, which govern the profile of a siphon, are provision for hydraulic losses and provisions for cleaning.

Mode of measurements & payment

Manholes shall be measurement as one nos. of manhole. Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel. The depth shall be measured correct to 10mm. The extra depth shall be measured and paid as extra over the specified depth in running meter.

Rates:

The rate shall include the cost of the material and labour involved in all the operation described in the items.

In case of cast in Situ RCC manholes, the items of RCC, steel, shuttering, footrest, cover & frame, etc. shall be paid as per specific items in the respective chapter of ISSR.

For cast in Situ and precast RCC manholes, the steel for reinforcement shall be as per the provision of IS 456 and IS 3370 Part I, II, & IV.

The rates for excavation of trench for laying of sewer line & water line and manhole/chambers shall cover all site clearances, adequate barricades, construction signs, red lanterns and guards as required, dewatering, scaffolding, timbering, machinery, tools implements and generally of all means used for the fulfilment of these items.

Item No. 11

Extra for increasing depth of manhole beyond 1055mm and upto 1254mm with extension piece of internal dia 1000mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)

General

All relevant Specification as per Item No.10. It shall be completed as per the instruction and as directed by engineer in charge.

**Mode of measurements & payment:**

The rate shall be for a unit of one Running meter.

Item No. 12

Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1200mm and 1255mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS footsteps, supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15E,F,G,H) {Note:- Only Excavation as per actual shall be paid separately}

General

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment:

The rate shall be for a unit of one Nos.

Item No. 13

Extra for increasing depth of manhole beyond 1255mm and upto 1554mm with extension piece of internal dia 1200mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)

General

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment

The rate shall be for a unit of one Running meter.

Item No. 14

Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1500mm and 1555mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS footsteps, supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per



specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15I,J,K,L) {Note:- Excavation as per actual shall be paid separately}

General

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment:

The rate shall be for a unit of one Nos.

Item No. 15

Extra for increasing depth of manhole beyond 1555mm and up to 6000mm with extension piece of internal dia 1500mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)

General

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment

The rate shall be for a unit of one Running meter.

Item No. 16

Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1800mm and 6000mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS footsteps, supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15M,N,O,P) {Note:- Excavation as per actual shall be paid separately}

General

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment:

The rate shall be for a unit of one Nos.

Item No. 17

Extra for increasing depth of manhole beyond 6000mm and up to 14000mm with extension piece of internal dia 1800mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)

**General**

All relevant Specification as per Item no.10. It shall be completed as per the instruction and as directed by engineer in charge.

Mode of measurements & payment:

The rate shall be for a unit of one Running meter.

Item No. 18

Providing SCI drop connection with SCI drop pipe and bend encased all round with Cement concrete grade M-5 (Nominal Mix) with stone aggregate 40mm nominal size including cutting holes and making good with brick work in cement mortar 1:5(1 cement:5 fine sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on inside walls including lead caulked joints and jointing SW pipes & SCI pipes with stiff cement mortar 1:1(1 cement: 1sand) including making required channel etc. complete.

- (i) For 100 mm drop connection
- (ii) For 150mm dia drop connection
- (iii) Extra rate for depths of drop more than 60 cm

All materials and Workmanship as relevant specification as per CPWD Specification.

In cases where branch pipe sewer enters the manhole of main pipe sewer at a higher level than the main sewer, a drop connection shall be provided. The work shall be carried out as per Fig. 19.8. S.C.I. pipes and special conforming to IS 1729 shall be of the same size as that of the branch pipe sewer. For 150 and 250 mm main line, if the difference in level between the water line (peak flow level) and the invert level of the branch line is less than 60 cm, a drop connection may be provided with in the manhole by giving suitable ramp. If the difference in level is more than 60 cm, the drop shall be provided externally. The main lines up to 350 mm dia, are designed for half depth of flow, from 350 mm to 900 mm for 2/3 depth of flow and beyond 900 mm for 3/4 depth of flow.

Excavation

The excavation shall be done for the drop connection at the place where the branch line meets the manhole. The excavation shall be carried up to the bed concrete of the manhole and to the full width of the branch line.

Laying

At the end of branch sewer line S.C.I. cross shall be fixed to the line which shall be extended through the wall of the manhole by a horizontal piece of S.C.I. pipe to form an inspection or cleaning eye. The open end shall be provided with chain and lid. The S.C.I. drop pipe shall be connected to the cross at the top and to the S.C.I. bend at the bottom. The bend shall be extended through the wall of the manhole by a piece of C.I. pipe which shall discharge into the channel. Necessary channel shall be made with cement concrete 1:2:4 (1 cement: 2 coarse sand: 4 graded stone aggregate 20 mm nominal size) and finished smooth to connect the main channel. The joint between S.C.I. pipe and fittings shall be lead caulked as described in 18.5.3. The joint between S.C.I. cross and S.W. branch line shall be made with cement mortar 1:1 (1 cement:1 fine sand). The exposed portion of the drop connection shall be



encased all-around with minimum 15 cm thick concrete 1:5:10 (1 cement: 5 fine sand: 10 graded stone aggregate 40 mm nominal size) and cured. For encasing the concrete around the drop connection, the necessary centering and shuttering shall be provided. The holes made in the walls of the manhole shall be made good with brick work in cement mortar 1:4 (1 cement: 4 coarse sand) and plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on the inside of the manhole wall. The excavated earth shall be back filled in the trench in level with the original ground level.

Mode of measurements & payment:

Drop connection shall be enumerated. The depths beyond 60 cm shall be measured in running metres correct to a cm under relevant items.

The rate shall include the cost of labour and materials involved in all the operations described above but excluding the cost of excavations and refilling.

Item No. 19

Trenchless Pipe pushing method of suitable dia. hole below natural ground level and pushing MS casing pipe and insertion of carrier pipe and anti-corrosive treatment, epoxy painting, PU coating and insulation sheet / spacer including excavation, shoring/ strutting, preparation and maintaining the entry and exit pit, including cost of supply, laying and jointing of MS casing Pipe (For Highway crossings).

- a. 610mm dia. (O.D.) 6.40mm Plate thickness MS casing pipe (For 300mm dia. RCC Carrier Pipe)
- b. 1016mm dia. (O.D.) 8.70mm Plate thickness MS casing pipe (For 600mm dia. RCC Carrier Pipe)

- Preparing the required drawings & to get the permission / approval for lowering, laying & jointing pipeline below Road under the supervision of concerned authority & also obtaining completion certificate from the concerned authority after completion of work. Authority will reimburse all statutory charges & sign the necessary papers related to the work as per requirement. All other charges shall be borne by the contractor.
- Drilling horizontal bore & providing, fixing M.S. casing pipe with jointing.
- Constructing temporary R.C.C. thrust block & base concrete as per requirement for facility of pushing the pipeline and dismantling the same on completion of work
- Fixing of water main pipe.
- Sealing both ends of pipe with construction of brick work including C.C 1:3:6.

**General Technical Requirements:**

Sr. No.	Particulars
1	Casing pipe shall be of mild steel MS pipes shall be fabricated as per IS:3589 from steel plates conforming to IS:2062. The casing pipe shall be designed for MBG loading standard or any other current loading standard as defined in IRS Bridge Rules.
2	For insertion of casing pipe, boring shall be carried out by auger type boring device with cutting head to drill a horizontal bore. The hole drilled shall be of suitable size to accommodate casing pipes. The casing pipe shall be inserted along with boring to keep the formation supported to prevent any settlement of the track. The casing pipes will be installed with even bearing throughout its length. The work will be done under the supervision of concerned authority.
3	The casing pipe will be Deep below the natural ground level As Per concerned authority Requirements. The length of casing pipe shall be up to the end of land boundary.
4	Care shall be taken to isolate the pipeline crossing installation from aerial electrical wires & shall be suitably insulated from underground conduits carrying electrical wires.
5	The pipeline shall be tested for specified test pressure to check for leakage.
6	To protect casing pipes as well as carrier pipe against corrosion, following action will be taken: (a) Outer surface of casing pipe will be painted with a coat of zinc rich epoxy primer of thickness 4 mils. (b) Suitably 3 roller support at 4 mtrs interval of steel pipe shall be welded spacers of high-density polyethylene or either similar material shall be installed in between the carrier & casing pipe to prevent carrier pipe forming metallic contact with casing pipe.
7	The alignment of the pipeline shall be so decided that it crosses track nearest to right angle.
8	These special conditions and the schedule of work shall govern the work to be executed under this contract in addition to and/or in part super session of the General Conditions of Contract & Standard Specifications.

The fixing of water main shall be as per detail specifications in section.

Scope also covers

- Shifting of service lines and reinstating the same
- Demolishing all types of R. C. C., masonry work
- Pumping / Bailing out water etc.

No extra payment shall be made for dewatering when any work is done below water level.



The rate quoted by the Contractor/s shall be deemed to include diversions, bunds, approach road to the site of work etc. and such other works, necessary for setting out and execution of works in different phases as ordered by the Engineer and / or his representative. No extra payment shall be made for such works or any other phase of works carried out which are necessary for satisfactory execution of work. The diversion for traffic shall be made by the agency as per requirement without any extra cost.

Any timbering work required to be done for retaining earth during excavation of foundations will have to be arranged by the contractor which shall conform to the provision laid down in Specification of Timber Shoring.

The working area may be waterlogged during monsoon or any untimely rains. Contractor should take the special note while preparing the program schedule for this work. Contractor should also specify the method which they propose to avoid water logging in the working area; however, it may be clearly noted that bailing out / pumping out shall not be payable.

The rate is on Rmt. basis for specified length as per detail description in item. However, during execution as per site condition, if the length of pushing is increasing / decreasing the excess / reduce payment will be adjusted accordingly.

Item No. 20

Providing and laying in position M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - M20 for Encasing.

General

All materials and Workmanship as relevant specification as per Sub Head no.5 in CPWD Specification Volume 1

Mode of Measurements & Payment:

The rate shall be for a unit of one Cubic meter.

Item No. 21

Centering and shuttering including strutting, propping etc. and removal of form for encasing.

General

All materials and Workmanship as relevant specification as per Sub Head no.5.2 in CPWD Specification Volume 1

Mode of measurements & payment:

The rate shall be for a unit of one square meter.

Item No. 22

Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding up to floor level including cost of binding wire, wastage and over laps up to 12mm horizontal/ inclined position of reinforcement bars in slab and beams, plinth, chajjas, lintels, up to 4.5m vertical length of reinforcement



in wall columns (over laps shall be provided as per requirement of IS : 13920; IS 456 & SP : 34) etc. complete. Thermo-Mechanically Treated bars. (Fe 500 D or more)

General

All materials and Workmanship as relevant specification as per Sub Head no.5 in CPWD Specification Volume 1

Mode of measurements & payment:

The rate shall be for a unit of one Kg/Mt.

Item No. 23

Providing and erecting C. I. and MS ventilating columns 15 cms. dia. with C.I. ornamental cap and Min 6.00 Mtrs. high (Height may be varying as per site) base fixed firmly with necessary foundation with one coat of red lead oxide paint and one coat of any approved colour with 15 cms, dia.10 Mt.in length with 0.35mt*0.35mt* M100 Encasing, stoneware or R.C.C. pipe connection with M.H. including excavation and jointing as required etc. complete. as per drawing. For 12 Mtrs. Height (2 m CI and 10m MS)

General

All relevant Specification as per CPWD. It shall be completed as per the instruction and as directed by engineer in charge.

Sewer Ventilators:

It is necessary to make provision for the escape of air to take care of the exigencies of full flow and to keep the sewage as fresh as possible especially in outfall sewers. In case of storm sewers providing ventilating manhole covers serves the purpose.

Ventilating columns/ shafts shall be provided at an interval of 180m in all mains intercepting and outfall sewers, near the manholes.

The connection of house drains to the sewer shall be allowed without the use of any intercepting trap and thus permitting ventilation of laterals and branch sewers via. House drains and their ventilating pipes.

The pipe which provides a safe outlet into the atmosphere for the foul gases in the drain or sewer.

Sand Cast Iron or Centrifugally Cast (Spun) Iron Pipes and Fittings

Sand cast iron spigot and socket soil, waste and ventilating pipes, fittings and accessories shall conform to IS 1729. Centrifugally cast (Spun) iron spigot and socket soil, waste and ventilating pipes, fittings and accessories shall conform to IS 3989.

The fittings shall conform to the same I.S. specifications to which the pipe itself conforms in which they are connected.

The pipes shall have spigot and socket ends, with head on spigot end in case of sand cast iron pipes and without head on spigot end in case of cast iron (Spun) pipes. The pipes and fittings shall be true to shape, smooth and cylindrical, their inner and outer surface being as nearly as practicable concentric. They shall be sound and shall be



free from cracks, taps, pinholes and other imperfections and shall be neatly dressed and carefully fettled. All pipes and fittings shall ring clearly when struck with a light hand hammer.

The ends of pipes and fittings shall be reasonably square to their axis. The sand cast iron pipes shall be 1.5/1.8/2.0 metre in length including socket ends, cast iron (Spun) pipes shall be 1.5/1.75/ 2.0/2.5/3.0 metre in length excluding socket ends, unless shorter lengths are either specified or required at junctions etc. The pipe and fittings shall be supplied without ears, unless specified or directed otherwise.

All pipes and fittings shall be coated internally and externally with the same material at the factory; the fitting being preheated prior to total immersion in a bath containing a uniformly heated composition having a tar or other suitable base. The coating material shall have good adherence and shall not scale off. In all instances where the coating material has tar or similar base it shall be smooth and tenacious and hard enough not to flow when exposed to a temperature of 77 degree centigrade but not so brittle at a temperature of 0 degree centigrade as to chip off when scribed lightly with a pen knife.

The standard weights and thicknesses of pipes and their tolerances shall be as prescribed in Appendix A.

The thickness of fittings and their socket and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes. The tolerance in weights & thicknesses shall be the same as for straight pipes.

The access door fittings shall be designed to avoid dead spaces in which filth may accumulate. Doors shall be provided with 3 mm rubber insertion packing and when closed and bolted, these shall be watertight.

A Hubless Centrifugally Cast (Spun) Iron Pipes and Fittings

Hubless Centrifugally Cast (Spun) Iron Pipes and Fittings soil, waste and ventilating pipes, fittings and accessories shall conform to IS 15905.

The hubless centrifugally cast (spun) iron pipes shall have plain both ends (spigot type), without sockets. The pipes and fittings shall be true to shape, smooth and cylindrical, their inner and outer surface being as nearly as practicable concentric. They shall be sound and shall be free from cracks, taps, pinholes and other imperfections and shall be neatly dressed and carefully fettled. All pipes and fittings shall emit a clear ringing sound when struck with a light hand hammer.

The ends of pipes and fittings shall be reasonably square to their axis. The hubless centrifugally cast-iron pipes shall be 3.0 metre or more in length.

All pipes and fittings shall be coated internally and externally with the epoxy coating material at the factory; the fitting being preheated prior to total immersion in a bath containing a uniformly heated composition. The coating material shall have good adherence and shall not scale off.

The tolerance in diameter of pipes shall be as prescribed in Table-below :

External Diameters and Tolerances

Sl. No.	Nominal size DN (in mm)	External Diameter DE (in mm)	Tolerance on External diameter DE (in mm)
(1)	(2)	(3)	(4)
1	50	58	+2 -1
2	75	83	+2 -1
3	100	110	+2 -2
4	150	160	+2 -2
5	200	210	+2.5 -2.5

The thickness of fittings and spigot dimensions shall conform to the thickness and dimensions specified for the corresponding sizes of straight pipes. The nominal & minimum thicknesses of pipes & fittings shall be as per below:

Nominal & Minimum Thickness of Pipes & Fittings

Sr. No.	Nominal size (DN)	Thickness 'e' mm			
		Pipe		Fittings	
		Nominal	Minimum	Nominal	Minimum
(1)	(2)	(3)	(4)	(5)	(6)
i)	50	3.5	3.0	4.2	3.0
ii)	75	3.5	3.0	4.2	3.0
iii)	100	3.5	3.0	4.2	3.0
iv)	150	4.0	3.5	5.3	3.5
v)	200	5.0	4.0	6.0	4.0

The access door fittings shall have no dead spaces in which filth may accumulate. Doors shall be provided with 3 mm rubber insertion packing and when closed and bolted, these shall be watertight.

Joints:

The pipes and fittings may assemble using various types of joints, The joints are intrinsic components of the drainage, whose characteristics and tolerances shall be specified in the manufacture's catalogues.

Considering the different applications of cast iron pipe work systems, various joint designs are permitted if they satisfy the requirement to this standard. The joints shall incorporate one or more EPDM rubber gasket(s) to ensure leak tightness and prevent direct contact between the ends of pipes, fittings and accessories.

Materials for coupling of clamping components shall usually be made from:



Ductile iron of grade 500/7 as per IS 1865, or Stainless steels in accordance with IS 1570 (Part 5) to ensure resistance to corrosion and a stabilization against the austenitic stainless steel with at least 17 percent chrome and 9 percent nickel of equivalent, or from material of comparable resistance.

Ductile iron couplings of clamping components shall be coated internally and externally. All parts of the joints shall free from defects likely to compromise their suitability for use.

Mode of measurements & payment:

The rate shall be for a unit of one Nos.

List of Approved Makelist for Water Supply & Sewerage Works

Sr. No.	Material / Item	Make
1	Butterfly valve:	KIRLOSKAR BROS. LTD., MUMBAI, KIRLOSKAR INDIAN VALVE CO., NASIK FOURESS ENGINEERING (I) LTD.,BANGLORE INDIAN VALVE INTERNATIONAL, KOLKATA - "IVI" INTER VALVE AVK VALVE (INDIA) PVT. LTD. VAG VALVE (INDIA) PVT. LTD. ROTEX.
2	Air Valve:	Fouress Engg.(Ind.) Ltd., Bangalore" FOURESS" INDIAN VALVE INTERNATIONAL, KOLKATA - "IVI" KIRLOSKAR BROS.LTD.,MUMBAI,"KIRLOSKAR INDIAN VALVE Pvt., NASIK-"IVC" VALVE (INDIA) PVT. LTD. VAG VALVE (INDIA) PVT. LTD.
3	Sluice Valve:	FOURESS ENGINEERING(I)LTD.,BANGORE Sigma Flow (only Up to 400 mm size) INDIAN VALVE INTERNATIONAL, KOLKATA- "IVI" KIRLOSKAR BROS.LTD.,MUMBAI,"KIRLOSKAR INDIAN VALVE Pvt., NASIK-"IVC" "SACHDEVA"- Sachdeva Metal Works - Jalandhar AVK VALVE (INDIA) PVT. LTD. VAG VALVE (INDIA) PVT. LTD. "Shiva"-Shiva Industries, Jaipur(up to 400mm Dia)
4	Water stopper:	Sinecos Profiles Pvt. Ltd. or equivalent., Arti



5	D.I. C.L. Pipe:	Jindal Saw Ltd. Ahmedabad Electrotherm (India) Ltd. Ahmedabad Electro steel Casting Kolkata & Chennai Rashmi Metaliks, Kolkata TATA Metaliks Pvt. Ltd., Kolkata Welspun DI Pipes Limited Jay Balaji Industry, Kolkata
6	M.S. Pipe:	The vendors for H.R Coil are as Follows: ESSAR STEEL known as AM/NS ISPAT TATA IRON & STEEL CO. STEELAUTHORITY OF INDIA LTD. JSW AND JINDAL STEEL & POWER
7	GI Pipe	Tata, Asian, Jindal
8	Precast drains & Cover	Fuji Silverttech, Sachi
9	Precast RCC Machine hole	Aditya Megha Cement Product, Somtech Precast, SGG Cement Products, GRG Infrastructure, Shree Nakoda Precast
10	RCC Pipe	BN Industries, Shree Ram Precast, Mohta Cement Pvt. Ltd., Girnar Cement Pipe, Katariya Pipe Industries, BH Cement Product, Shree Mahavir Concrete Product, Gwalior Span Pipe, Saraf Pipe Industries, TNK Cement Pipe Industries, Malva Concrete Udhog Pvt. Ltd., Aditya Megha Cement Product, Somtech Precast, SGG Cement Products, GRG Infrastructure, Shree Nakoda Precast

**Annexure – F**

(See Clause 3 of Section 2 – ITB)

PROCEDURE FOR PARTICIPATION IN E-TENDERING**1. Registration of Bidders on E-Tendering Portal:**

All the Contractors registered under Centralized Registration System (CRS) of UMC, or the Contractors having applied under CRS shall be eligible for tendering in the designated portal (<https://mptenders.gov.in>). However, the Bidders registered under CRS shall also be required to register themselves on this portal as per guidelines shown on the portal.

Digital Certificates: The Bids submitted online should be signed electronically with a Class III Digital Certificate to establish the identity of the Bidder submitting the Bid online.

2. Preparation and Submission of Bids:

The Bidders must prepare their Bids and submit the Bids online as per procedure given in the portal.

3. Purchase of bid Documents:

For purchasing the bid document, bidders are to pay online as per details given in the portal.

4. Withdrawal Substitution and Modification of Bids:

Bidder can withdraw and modify the bid before the bid submission end date.

**Annexure – G**

(See Clause 4 of Section 2 – ITB)

JOINT VENTURE (JV)

~~If J.V. is allowed following conditions and requirements must be fulfilled:~~

- ~~1. Bids submitted by a joint venture of two or more firms as partners shall comply with the following requirements:~~
 - ~~a. one of the partners shall be nominated as being Lead Partner, and this authorization shall be evidenced by submitting a power of attorney signed by legally authorized signatories of all the partners.~~
 - ~~b. the bid and, in case of a successful bid, the Agreement, shall be signed so as to be legally binding on all partners.~~
 - ~~c. the partner in charge shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the joint venture and the entire execution of the contract, including payment, shall be done exclusively with the partner in charge.~~
 - ~~d. all partners of the joint venture shall be liable jointly and severally for the execution of the contract in accordance with the contract terms, and a statement to this effect shall be included in the authorization mentioned under [c] above, as well as in the bid and in the Agreement [in case of a successful bid].~~
 - ~~e. The joint venture agreement should precisely indicate the role of all members of JV in respect of planning, design, construction equipment, key personnel, work execution, and financing of the project. All members of JV should have active participation in execution during the currency of the contract. This should not be varied/modified subsequently without the prior approval of the employer.~~
 - ~~f. The joint venture agreement should be registered, so as to be legally valid and binding on all partners; and~~
 - ~~g. a copy of the Joint Venture Agreement entered into by the partners shall be submitted with the bid.~~
- ~~2. The figures for each of the partners of a joint venture shall be added together to determine the Bidder's compliance with the minimum qualifying criteria required for the bid. All the partners collectively must meet the criteria specified in full. Failure to comply with this requirement will result in rejection of the joint venture's bid.~~
- ~~3. The performance security of a Joint Venture shall be in the name of the partner Lead Partner/joint venture.~~
- ~~4. Attach the power of attorney of the partners authorizing the Bid signatory(ies) on behalf of the joint venture~~



5. ~~Attach the agreement among all partners of the joint venture [and which is legally binding on all partners], which shows the requirements as indicated in the Instructions to Bidders.~~
6. ~~Furnish details of participation proposed in the joint venture as below:~~

Participation Details	Firm 'A' (Lead Partner)	Firm 'B'	Firm 'C'
Financial			
Planning			
Construction Equipment			
Key Personnel			
Execution of Work (Provide details of contribution on each)			

CLARIFICATION ON JV:

1. ~~Annexure-G (Page 24) of the bid document describes the conditions and requirements to be applied/fulfilled in case of bidding by the joint venture (J.V.). For the purpose of evaluating technical bids, it is hereby clarified that in addition to the conditions contained in Annexure-G of the bid document, the partners of J.V. should satisfy the qualification criteria as below:-~~
- ~~The lead partner must have a share of minimum 51% in the J.V.~~
 - ~~The other partner(s) must have a share of minimum 26% in the J.V.~~
 - ~~The lead partner and the other partner must also meet 51% and 26% of the all qualification criteria respectively except for the requirement of work experience described in Annexure-I 1(A) (Page 27). However, both the partners must satisfy the full (100%) qualification criteria jointly. For this purpose, the qualification of individual partners shall be added (for Annual Average Turn Over and for Bid Capacity only).~~
 - ~~Following clarification / amendment is hereby done in requirement contained in Annexure-I 1(A) for J.V:~~
 - ~~Out of three similar works of value more than 20% of PAC, at least two works must be done by lead partner and one work to be done by other partner,~~
- OR
- ~~Out of two similar works of value more than 30% of PAC, at least 1 (One) work must be done by lead partner and 1 (One) work to be done by other partner,~~



OR

- iii. ~~In case of one similar work of value more than 50% of PAC the lead partner must satisfy the criteria. However, the other partner must satisfy the criteria in (i) above i.e., at least one work of 20% of PAC.~~

**Annexure – H**

(See Clause 12 of Section 2 – ITB and Clause 4 of GCC)

ORGANIZATIONAL DETAILS
(To be contained in **Envelope – A**)

Sr. No.	Particulars	Details
1	Registration number issued by Centralized Registration System of Govt. of M.P. or Proof of application for registration.	(if applicable scanned copy of proof of application for registration to be uploaded)
2	Valid Registration of bidder in appropriate class through Centralized Registration of Govt. of MP	Registration No. - Date – (Scanned copy of Registration to be uploaded)
3	Name of Organization / Individual/ Proprietary Firm / Partnership Firm	
4	Entity of Organization - Individual / Proprietary Firm / Partnership Firm (Registered under Partnership Act) / Limited Company, (Registered under the Companies Act-1956) / Corporation / Joint Venture	
5	Address of Communication	
6	Telephone Number with STD Code	
7	Fax Number with STD Code	
8	Mobile Number	
9	E-mail Address for all communications	
	Details of Authorized Representative	
10	Name	
11	Designation	
12	Postal Address	
13	Telephone Number with STD Code	
14	Fax Number with STD Code	
15	Mobile Number	
16	E-mail Address	

Note: In case of partnership firm and limited company certified copy of partnership deed / Articles of Association and Memorandum of Association along with registration certificate of the company shall have to be enclosed.

Signature of Bidder with Seal and Date:

**Annexure – I**

(See Clause 14 of Section 2 – ITB)

IMPORTANT INFORMATION TO BE PROVIDED BY BIDDER(To be contained in **Envelope – B**)

The technical proposal shall comprise the following documents:

Sr. No.	Particulars	Details to be submitted
1	Declaration / Undertaking	Annexure – I (Format: I-1)
2	Company / Firm Related information	Annexure – I (Format: I-2)
3	Information about Bid Capacity	Annexure – I (Format: I-3)
4	Summary of Similar Completed Projects during last 5 years	Annexure – I (Format: I-4)
5	Detailed information about Similar completed projects by Bidder	Annexure – I (Format: I-4.a)
6	Quantities Executed By Bidder During Last 5 Years	Annexure – I (Format: I-5)
7	Information about the key personnel	Annexure – I (Format: I-6)
8	Information about litigation history	Annexure – I (Format: I-7)
9	Information about Construction Plant and Equipment	Annexure – I (Format: I-8)
10	List of key equipment for Quality Control Lab	Annexure – I (Format: I-9)
11	Format for MoU with Specialized Agency	Annexure – I (Format: I-10)

Note:

- i. *Technical proposal should be uploaded duly page numbered and indexed otherwise*
- ii. *Technical proposal uploaded otherwise will not be considered.*



Annexure – I (Format: I-1)
(See Clause 14 of Section 2 – ITB)

DECLARATION / UNDERTAKING

[Letter head of the Bidder firm including full postal address, telephone nos., fax no., telex no., E mail address & website]

[Location _____, Dt. __/__/____]

To:	
Commissioner	
Ujjain Municipal Corporation	
Ujjain	

Dear Sir,

Being duly authorized to represent and act on behalf of

_____ (hereinafter “the Bidder”), and having reviewed and fully understood all the prequalification information provided, the undersigned hereby apply to be prequalified by yourselves as a tenderer for the following contract under the **[Name of Project]**

Contact Name	Contact Number

Attached to this letter are copies of original documents (attested true copies) defining:

- The Bidder's legal status.
- Its principal place of business; and
- Its place of incorporation (for Applicants which are corporations); or its place of registration (for applicants which are partnerships or individually owned firms).

You and your 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 Letter of Application will also serve as authorization for any individual or authorized representative of any institution referred to in the supporting information, to provide such information deemed necessary and as requested by you to verify



statements and information provided in this application, such as the resources, experience, and competence of the Bidder.

This application is made in the full understanding that:

- a) PQ Bids by Bidder/s will be subject to verification of all information submitted for prequalification at the time of bidding.
- b) "Client" reserves the right to:
 - i. Amend the scope and value of any contracts tendered under this project, in such event, tenders will only be invited from pre-qualified applicants who meet the revised requirements.
 - ii. Reject or accept any application, cancel the prequalification process, and reject all application; and
- c) "Client" shall not be liable for any such actions and shall be under no obligation to inform the Bidder of the grounds for such actions.

The undersigned declare that the statements made, and the information provided in the duly completed application are complete, true and correct in every detail.

I/We agree that the decision of "Client" in selection of Bidder, phasing of works and in any other project related matter, will be final and binding to me / us.

Yours Sincerely,

For and on behalf of	
Authorized Signature with stamp	
Name and title of Signatory	
Name of the firm:	
Address:	



Annexure – I (Format: I-2)
(See Clause 14 of Section 2 – ITB)

COMPANY / FIRM RELATED INFORMATION

a)	Name of the organization/firm:	
b)	Address of the organization/firm:	
	Phone nos.:	
	Fax no.:	
	E-mail:	
c)	Name & Particulars of the Authorized Representative for the details furnished hereinafter:	
d)	Annual Turnover of the Bidder for the last 5 financial years (in Rs. Crores):	
	1) 2025-2026	
	2) 2024-2025	
	3) 2023-2024	
	4) 2022-2023	
	5) 2021-2022	
	Average:	
e)	Type of the Organization including particulars of Proprietor / Partners / Directors:	
	(Sole Proprietorship, Partnership, Private Ltd., Co-operative Body etc.)	
	(Attested copy of Deeds or Memorandum of Association to be enclosed)	
	1)	
	2)	
	3)	
4)		



f)	Certificates:	
	1) Employees Insurance Schemes Registration Certificates:	
	2) P.F. Registration Certificates.	
g)	Name of bankers and full address:	
	1)	
	2)	
h)	Financial Resources of Company:	
	(Rest. in Crores.)	
	1) Bank Facilities Available (Please attach copies wherever applicable)	
	Overdraft:	
	Guarantees:	
	Letters of Credit:	
	Others:	
i)	Information about Registered office, Head office and Branch office	

Note: The bidder / applicant should have to fill this information on their company letter head and enclosed separately.

**Annexure – I (Format: I-3)**

(See Clause 14 of Section 2 – ITB)

INFORMATION ABOUT BID CAPACITY

The bid capacity shall be worked out using the formula: -

Bid capacity = $[1.5 \times A \times B] - C$ = _____ (to be filled by Applicant)

Sr. No.	Nomenclature	Description	Details
01	A	Maximum annual financial turnover of civil construction works of last 5 years (as per table – 1 below) 10% weightage per year shall be given to bring the value of work executed at present price level.	
02	B	Number of years (1 years) prescribed for completion of work for which bid has been invited.	
03	C	Value of existing commitments against ongoing works that is scheduled to be completed simultaneously with this work i.e., for which bid has been invited (as per table – 2 below)	

Table – 1: For Calculation of A

	2021 - 22	2022 - 23	2023- 24	2024- 25	2025- 26	Maximum Value
Annual financial turnover of civil construction works (Rs. in Crores)						

Table – 2: For Calculation of C:

Sr. No.	Name of work	Contract Amount (Rs. in Crores)	Value of works completed as on date of bid opening	Value of existing commitments against ongoing works that is



			(Rs. in Crores)	scheduled to be completed simultaneously with this work i.e., for which bid has been invited (Rs. in Crores)
1				
2				
3				
			Total Value	

Note: Bidder may add rows in the above table (format) as per their list of ongoing projects.

- The value of completed works shall be brought to current costing level by following enhancement factor. Enhancement factor shall be applicable from the year of completion of project as per completion certificate.

Year	Financial Year	Enhancement Factor
B -1	2025-2026	1.00
B -2	2024-2025	1.10
B -3	2023-2024	1.21
B -4	2022-2023	1.33
B -5	2021-2022	1.46

Note: Above criteria are indicative, subject to suitable stipulations by the departments and specific Bid.

- Annual turnover of construction should be certified by the Chartered Accountant.
- Audited balance sheet including all related notes, and income statements for the above financial year to be enclosed.



iii. Enhancement Factor shall be utilized exclusively for calculating the annual turnover to determine the Bid Capacity of the bidder. The Enhancement Factor shall not be applied to evaluate any form of Physical Qualification (physical experience/cost of work). For the purpose of Physical Qualification, only the original cost of the actual executed work (Actual Executed Cost) shall be considered valid.

**Annexure – I (Format: I-4)**

(See Clause 14 of Section 2 – ITB)

SUMMARY OF COMPLETED SIMILAR PROJECTS BY BIDDER DURING LAST 5 YEARS

Sr. No.	Year	Project Name	Client	Actual Project Cost (Rs. Crores)	Scope of Work which is similar to the project	Project duration (as per contract) (in months)	Actual duration (in Months)
Similar Project No. – 1							
Similar Project No. – 2							
Similar Project No. – 3							
Similar Project No. – 4							

**** Bidder may add rows as per their list of executed projects.**

Note: Copy of Original or attested copies of work order, final completion certificate from client has to be attached.



Annexure – I (Format: I-4.a)
(See Clause 14 of Section 2 – ITB)

**DETAILED INFORMATION ABOUT SIMILAR COMPLETED PROJECT BY
BIDDER**

1	Project name:	
2	Client:	Name:
		Address:
		Contact number:
3	Principal Architect:	Name:
		Address:
		Contact number:
4	Structural Consultant:	Name:
		Address:
		Contact number:
5	Service Consultants:	Name:
		Address:
		Contact number:
<u>Project Data:</u>		
1	Type of Project	
	Scope of work which is similar to the project such as exposed concrete work.	
	Tendered Project cost (in Rs. Crores):	
	Actual project Cost (in Rs. Crores):	
2	Technical Data of Project	
	Total Length of water supply network and sewerage network	
3	Project Timeline	



	Project duration (as per contract): (in months)	
	Start date as per LOI (dd/mm/yyyy):	
	Actual Completion date as per final completion certificate issued by client (dd/mm/yyyy):	
	Actual duration (Months):	
	Reasons for delay (if any):	
	Additional Data	
	Any penalty/ Bonus:	
	Litigation History, If any	
	Any claim/Dispute pending (with details of claim and award if any):	
	Amount of claim / penalty	
	Client Certificates attached:	Yes / No

Note: Copy of Original or attested copies of work order, final completion certificate from client has to be attached.



Annexure – I (Format: I-5)
(See Clause 14 of Section 2 – ITB)

QUANTITIES EXECUTED BY BIDDER DURING LAST 5 YEARS

Sr. No.	Year	Project Name	Client	Actual Project Cost (Rs. Crores)	Scope of Work	Quantity	
						Water Supply line (Dia. & length)	Sewerage line (Dia. & length)
	2026						
1							
2							
	2025						
1							
2							
	2024						
1							
2							
	2023						
1							
2							
	2022						
1							
2							
	2021						
1							
2							
	2020						
1							
2							

Note: Copy of Original or attested copies of work order, final completion certificate from client has to be attached.



Annexure – I (Format: I-6)
(See Clause 14 of Section 2 – ITB)

INFORMATION ABOUT THE KEY PERSONNEL

The bidder shall ensure the availability for this work minimum key personnel as given in the following table. Detailed biodata of Project Manager and Materials & Quality Control engineer shall be submitted as per the below given forms.

Sr. No.	Personnel	Qualification	No. of Person
1	Project Manager	B.E. Civil + 15 Years Experience (10 Years as Manager)	1
2	Senior Site Engineer	B.E. Civil + 8 Years Experience or Dip. Civil + 10 Years Experience	2
3	Planning Engineer	M.E. in Construction Management + 5 Years Experience or B.E. Civil + 10 Years Experience	1
4	Senior Quantity Surveyor	B.E. Civil + 8 Years Experience or Dip. Civil + 10 Years Experience (4 Years in Similar Work)	1
5	Contracts Manager	B.E. Civil + 8 Years Experience or Dip. Civil + 10 Years Experience (4 Years in Similar Work)	1
6	Plant Engineer	B.E. Civil + 5 Years Experience or Dip. Civil + 8 Years Experience	1
7	Senior Surveyor	B.E. Civil + 5 Years Experience or Dip. Civil + 8 Years Experience	1
8	Junior Surveyor	B.E. Civil + 5 Years Experience or Dip. Civil + 8 Years Experience	2
9	Material & Quality Control Engineer	B.E. Civil + 2 Years Experience or Dip. Civil + 3 Years Experience	1



10	Junior Site Engineer	B.E. Civil + 5 Years Experience or Dip. Civil + 8 Years Experience	3
11	Environment & Occupational Health and Safety Officer	B.E. Civil/Environmental Engineering + 5 Years Experience or PG Dip. Occupational Health and Safety + 5 Years Experience	1
Total			15

Form A – Information of Director/owner of company

1	Name	
2	Date of Birth	
3	Qualification with Year	
4	Years of Experience	

Form B - Information of the technical personnel proposed for this Project.

Sr. No.	Proposed position for this project	Name of Candidates
1.		
2.		
3.		
4.		
5.		
6.		
7.		

Note: Bidder will have to submit detailed CV for each person specified in each category as per the prescribed Form- B, below.

**Form C – Curriculum Vitae**

1	Proposed position for this project	
2	Name of candidate	
3	Date of Birth	
4	Qualification with Year	
5	Total Experience (in Years)	
6	Years with the present Employer	
7	Details of similar projects executed by applicant **	
7.1	Name of Project	
7.2	Name of Client	

Summarize professional experience over the last 10 years, in reverse chronological order. Indicate particular technical and managerial experience relevant to the Project:

From	To	Company / Project / Position / Relevant technical and management experience / Type of Project
**		

**** Bidder may add rows as per their list of executed projects.**



Annexure – I (Format: I-7)
(See Clause 14 of Section 2 – ITB)

INFORMATION ABOUT LITIGATION HISTORY

Bidder should provide information on any history or arbitration resulting from contracts in last five year or currently under execution.

Year	Award for / or Against Bidder	Name of Client cause of litigation and matter of dispute	Disputed amount in Rupees

Note: *If the information to be furnished in this schedule will not be given and comes to notice, it will subsequently result in disqualification of the bidder.*



Annexure – I (Format: I-8)
(See Clause 14 of Section 2 – ITB)

INFORMATION ABOUT CONSTRUCTION PLANT AND EQUIPMENT

Sr. No.	Type of Equipment	Capacity	Max. Age as on 31st March 2026	No. of Working Equipment	No. of Actual Working Equipment
1	Cranes	14 tonnes	5 Years	3	
2	Cranes	20 tonnes	5 Years	2	
3	D G set	25 KVA	2 Years	3 working + 2 standbys	
4	Concrete batching and mixing plant	As per requirement	3 Years	1 set	
5	Concrete pumps	As per requirement	3 Years	1 set	
6	Concrete Vibrators (Needle, Surface vibrators)	As per requirement	1 Year		
7	Reinforcement cutting and bending Machine	As per requirement	1 Year	3 sets	
8	Transit mixer	As per requirement	5 Years	6 Nos.	
9	Dewatering Pumps	As per requirement	2 Years		
10	Tippers/ Dumpers	5 / 10 Cum	5 Years	9 Nos	
11	Hydraulic Motor Grader		5 Years		
12	Water tanker/sprinkler	10 cum	2 Years	3 Nos	
13	Surveying Equipment		2 Years	3 Nos	
14	Total Station		2 Years	2 Nos	
15	Plate compactor		2 Years	3 Nos	
16	Air compressor		2 Years		
17	Concrete breaker		2 Years	3 Nos	
18	Welding machine		2 Years	3 Nos	
19	Shuttering Plates/System	As per requirement	Only New one as per sire requirement		
20	JCB		3 Years	5 Nos	



21	Concrete mixer with batching	2 Bag	1 Year	1 Nos	
22	Hydra Crane	8 Tonne	3 Years	3 Nos	
23	Tandem Vibratory Roller	Minimum 8 tonne	3 Years	1 Nos	
24	Tandem Vibratory Roller for compaction of edges (self-propelling)	Minimum operating weight 1 tonne	2 Years	3 Nos	
25	Boom Placer		3 Years	As per requirement	
26	Baby roller		5 Years	3 Nos	
27	Excavator		3 Years	2 Nos.	

- The documents regarding ownership of machinery / equipment etc and **self-attested** copies of hire purchase agreement if it must be enclosed and for to be procured the copy of work order placed shall be furnished.
- If leased indicate the date when the current lease expires.
- Describe the fabrication and workshop facilities (a) to be set up at site (b) to be subcontracted locally (c) to be set up any other place with relevant details.
- The above information shall be supported with necessary documents otherwise, the same shall be treated as null & void.
- For equipment on lease/rent, bidder shall submit lease/rental agreement on notarized stamp paper of Rs. 100 for total duration of the project.
- Contractor shall deploy other necessary machinery/equipment not listed here required for construction of the project.
- Bidders are mandated to provide relevant information against Annexure - I (Format: I-8) as per existing inventory of construction plant, machinery/equipment. During execution, successful bidder may be required to fulfil the criteria (in its entirety or part thereof) (via new purchase or renting) as per mutually decided with or as instructed by Engineer in charge.

DETAILS OF EQUIPMENTS WHICH WILL BE USED BY THE BIDDER FOR THE PROPOSED WORKS:

Description (Type, Model Make etc.)	Manufacturer with year of manufacture	Capacity	Nos. proposed to be used for the work.



The Bidder hereby confirms that the quality and type of equipment he will deploy for construction will not be less than listed above, and he agrees to provide more equipment, if so, wanted in the opinion of the engineer, at no extra cost to the UMC.



Annexure – I (Format: I-9)
(See Clause 14 of Section 2 – ITB)

List Of Key Equipment/ Machines For Quality Control Labs

Minimum requirement			Available with the bidder		
Sr. No.	Name of Equipment/ Machinery	Quantity	Sr. No.	Name of Equipment/ Machinery	Quantity
Machinery and Equipment Required for Conducting Test as per MORTH Specification Latest Revision					

Note: It is clarified that the minimum requirement is a mandatory requirement and part of technical bid, but the pre-qualification is not to be done on the basis of these criteria.



Annexure – I (Format: I-10)
(See Clause 14 of Section 2 – ITB)

MoU WITH SPECIALIZED AGENCY

MEMORANDUM OF UNDERSTANDING (MOU) FOR _____ (Name of Specialized Work).

This MEMORANDUM OF UNDERSTANDING herewith referred to as MOU made on this day of _____ at _____ (Location) by and between:

Name of Bidder with address

AND

Name of Specialized Agency with address for **(name of Specialized Work)**

And assigns hereinafter referred to as “Parties” in the collective sense and each of which is referred to as

Name of Bidder & Name of Specialized Agency in the individual sense.

WHEREAS Ujjain Municipal Corporation (UMC) (herein referred to as Employer) has invited tender (hereinafter referred to as the (“project”) for the following work:

Name of the work

WHEREAS if the said project is awarded to “_____ (Name of the bidder)” to execute the said project and it would also need items of “_____ (Name of Specialized Work) Work” and we the “_____ (Name of the bidder)” hereby enter into this MoU with “_____ (Name of Specialized Agency) “ for timely execution of various items of _____ (Name of Specialized work) Works as per the tender conditions and schedules there-in and further we mutually agree to execute the said project jointly but “_____ (Name of the bidder)” will be solely responsible for the execution of the said projects as per the Bidding Documents.

IN WITNESS WHEREOF all the parties mentioned herein above have signed this MoU on the day, month and year first above mentioned.



No change shall be made in this agreement without prior consent of Employer and other party.

However, if the employer directs the parties to make changes in MoU agreement so as to fulfil the tender condition/requirement, the parties shall discuss with the employer and shall mutually agree for such changes as may be required to be made in the agreement.

In the interest of timely completion of the project, after discussion and getting all the details from the Employer, “_____ (Name of Specialized Agency)” assures to meet the milestones and desired target of the projects.

We are aware that, in case the above schedule is not met with by us, we shall be liable for paying the Liquidated damages as prescribed in the tender documents for non-fulfilment of assured scope of work.

Bidder shall fill this CHECK LIST and ensure that all details / documents as mentioned in the tender documents are submitted along with their Bid. Please tick the box and ensure compliance and specify the Page no. of pre-qualification bid submitted.

Sr. No.	Details / Documents	Compliance	Page No.
		(Yes / No)	
Documents required for Mandatory Criteria			
1.	Copy of certificate from CA for turnover data along with copy of audited Balance sheets for last three financial years, submitted		
2.	Calculation of Bid Capacity (Form I-3), submitted		
3.	Copy of work order and final completion certificate issued by client to the contractor for similar projects along with quantities.		
4.	Summary of similar completed projects (Form I-4)		
5.	Details of similar completed projects (Form I-4a)		
6.	Quantities Executed in similar projects during last 5 years (Form I- 5)		
7.	Client's Certificate for Work Start and Completion		



8.	Information about the key personnel (Form I-5)		
9.	Information about Litigation History (Form I-7)		
10.	Information about Construction Plant and Equipment (Form I-8)		
Other Documents			
11.	Notarized affidavit for not having blacklisting history with Government, Semi-Government, Boards or Corporation and etc.		
12.	Copy of P.F. Registration Certificates, submitted		
13.	If name of the firm changed since establishment, details (certificate) for the same, submitted		
14.	Declaration / Undertaking (Form I-1), Submitted		
15.	Power of Attorney / Authorization letter in favour of signatory of Bid, submitted		
16.	Company / Firm related information (Form I-2), submitted		
17.	Attested copy of Deeds or Memorandum of Association, submitted		
18.	Copy of Employees Insurance Schemes Registration Certificates, submitted		
19.	Copies of Financial resources / Bank facilities, whichever applicable, submitted		
20.	Profile of Owner / Director along with Passport size Photographs and Qualification certificate submitted		
21.	Curriculum vitae of all key personnel (Form I-6: Form A, Form B & Form C), submitted		
Documents for complete submission			
22.	Similar Project – along with below mentioned details, submitted		
23.	Evidence of Client / 3rd party audits for Quality assurance system.		
24.	Progress Monitoring Reports for monitoring system signed by client.		



25.	Photographs for quality of construction (Form I-4a)		
26.	MoU with Specialised Agency (Form I-9)		

**Annexure – J**

(See Clause 14 of Section 2 – ITB)

FINANCIAL BID(To be contained in **Envelope – C**)

Name of Work: Construction of Proposed Water Supply and Sewerage Network of Block 1A & 1B (Package 4) at Ujjain Simhast 2028 area

I/We hereby bid for the execution of the above work within the time specified at the rate @.....or at par based on the Bill of Quantities and item wise rates given therein in all respects and in accordance with the specifications, designs, drawings and instructions in writing in all respects in accordance with such conditions so far as applicable. I/We have visited the site of work and are fully aware of all the difficulties and conditions likely to affect carrying out the work. I/We have fully acquainted ourselves with the conditions in regard to accessibility of site and quarries/kilns, nature, and the extent of ground, working conditions including stacking of materials, installation of tools and plant conditions affecting accommodation and movement of labour etc. required for the satisfactory execution of contract.

Should this bid be accepted, I/We hereby agree to abide by and fulfill all the terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the Governor of Madhya Pradesh or his successors in office the sums of money mentioned in the said conditions.

Note:

- i. *Only one rate of percentage above or below or at par based on the Bill of Quantities and item-wise rates given therein shall be quoted.*
- ii. *Percentage shall be quoted in figures as well as in words. If any difference in figures and words is found lower of the two shall be taken as valid and correct rate. If the bidder is not ready to accept such valid and correct rate and declines to furnish performance security and sign the agreement his earnest money deposit shall be forfeited.*
- iii. *In case the percentage "above" or "below" is not given by a bidder, his bid shall be treated as non-responsive. 1*
- iv. *All duties, taxes, and other levies payable by the bidder shall be included in the percentage quoted by the bidder.*

Signature of Bidder

Name of Bidder

The above bid is hereby accepted by me on behalf of the Governor of Madhya Pradesh dated the..... day of 2026.



Signature of Officer (by whom accepted)

Annexure – K

(See Clause 15 of Section 2 – ITB)

MATERIALS TO BE ISSUED BY THE DEPARTMENT

Sr. No.	Name of material	Rate (Issue rate)	Unit	Remarks
NIL				

**Annexure – L**

(See Clause 21 of Section 2 – ITB)

LETTER OF ACCEPTANCE**No.** _____**Dated** _____**To,**M/s _____
(Name and address of the contractor)**Subject –** _____
(Name of the work as appearing in the bid for the work)

-X-X-

Dear Sir (s),

Your bid for the work mentioned above has been accepted on behalf of the (Name of ULB) at your bided percentage _____ below / above or at par the Bill of Quantities and item wise rates as per scope of work given therein

You are requested to submit within 15 (Fifteen) days from the date of issue of this letter:

- a. The performance security/ performance guarantee of Rs _____ (in figures) (Rupees _____ in words only) only being 3% of the capital cost of the project. The performance security shall be in the shape of Term Deposit Receipt / Bank Guarantee of any nationalized / schedule commercial bank valid as per bid data sheet. (In prescribed Format as per Annexure - M 1)
- b. The Additional Performance Security / Additional Performance Guarantee of Rs. _____ (in figures) (Rupees _____ in words) only. The performance security shall be in the shape of Term Deposit Receipt/ Bank Guarantee of any nationalized / schedule commercial bank valid as per bid data sheet. (In prescribed Format as per Annexure - M 1)
- c. Duly signed Contract Agreement in Agreement Form as prescribed in Section - 5

Please note:

- i. The time allowed for carrying out the work as entered in the bid is _____ months including rainy season, shall be reckoned from the date of signing the Contract Agreement and
- ii. The Performance Security/ performance guarantee of Rs. _____ (in figures) (Rupees _____ in words) only being 10% of O & M, to be submitted before the completion of design-built



component valid up to 3 months beyond the end of O&M period. The performance security shall be in the shape of Term Deposit Receipt/ Bank Guarantee of any nationalized / schedule commercial bank. (In prescribed Format as per Annexure – M 1) Signing the contract agreement shall be considered as intimation to commencement of work and no separate letter for commencement of work is required. Therefore, after signing of the agreement, you are directed to contact Engineer-in-charge within 14 days for taking the possession of site and necessary instructions to start the work.

Yours Faithfully

**Executive Engineer,
UMC Ujjain**

**Annexure – M**

(See Clause 21 of Section 2 – ITB)

BID SECURITY (BANK GUARANTEE)

WHEREAS _____ (name of Bidder) (hereinafter called 'the Bidder') has submitted his Bid dated: _____ (date) for the construction of _____ (name of Contract hereinafter called 'the Bid')

KNOW ALL PEOPLE by these presents that we _____ (name of Bank) of _____ (name of country) having our registered office at _____ (hereinafter called 'the Bank') are bound unto _____ (name of the Executive Engineer) in the sum of _____ * for which payment well and truly to be made to the said _____ (name of the Executive Engineer) the Bank itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this _____ day of _____ 20__.

THE CONDITIONS of this obligation are:

- (1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid.

OR

- (2) If the Bidder has been notified to the acceptance of his bid by the name of the Executive Engineer during the period of Bid validity
- (a) fails to execute the Form of Agreement in accordance with the Instructions to Bidders, if required.

OR

- (b) fails or refuses to furnish the Performance Security, in accordance with the Instructions to Bidders.

We undertake to pay to the (name of the Executive Engineer) up to the above amount upon receipt of his first written demand, without the (name of the Executive Engineer) having to substantiate his demand, provided that in his demand of (name of the



Executive Engineer) will note that the amount claimed by him is due to him owing to the occurrence of one or any of the two conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including the date 180 ** days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the (name of the Executive Engineer), notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank no later than the above date.

DATE _____

SIGNATURE _____

WITNESS _____

SEAL _____

(Signature, name, and address)

** The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Bid Data Sheet at reference 17.*

*** EMD should be valid for a period of Six Months of more.*

**Annexure – M-1**

(See Clause 21 of Section 2 – ITB)

PERFORMANCE SECURITY

To

..... (name of Employer)
..... (address of Employer)

WHEREAS [name and address of Contractor]
(Hereinafter called "the Contractor") has undertaken, in pursuance of Letter of
Acceptance No. dated to execute
..... [name of Contract and brief description of Works] (hereinafter
called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the
Contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum
specified therein as security for compliance with his obligation in accordance with the
Contract.

AND WHEREAS we have agreed to give the Contractor such a Bank
Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and
responsible to you on behalf of the Contractor, up to a total of (Amount
of guarantee)* (in words), such sum being payable in the types and
proportions of currencies in which the Contract Price is payable, and we undertake to
pay you, upon your first written demand and without cavil or argument, any sum or
sums within the limits of (Amount of guarantee) as
aforesaid without your needing to prove or to show grounds or reasons for your
demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the
contractor before presenting us with the demand.

We further agree that no change or addition to or other modification of the terms
of the Contract of the Works to be performed there under or of any of the Contract



documents which may be made between you, and the Contractor shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall be valid until 3 (three) months from the date of expiry of the Defect Liability Period.

Signature, Name and Seal of the guarantor

Name of Bank

Address

Phone No., Fax No., E-mail Address, of Signing Authority

Date

** An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.*



SECTION – 3
Conditions of Contract
Part I – General Conditions of Contract

Table of Clauses

Clause No.	Particulars	Clause No.	Particulars
A. General		21	Payments for Variations and / or Extra Quantities
1	Definitions	22	No compensation for alterations in or restriction
2	Interpretations and Documents		
3	Language and Law	23	No Interest Payable
4	Communications	24	Recovery from Contractors
5	Subcontracting	25	Tax
6	Personnel	26	Check Measurements
7	Force Majeure	27	Termination by Engineer in Charge
8	Contractor's Risks	28	Payment upon Termination
9	Liability For Accidents to Person	29	Performance Security
10	Contractor to Construct the Works	30	Security Deposit
11	Discoveries	31	Price Adjustment
12	Dispute Resolution System	32	Mobilization and Construction Machinery Advance
B. Time Control		33	Secured Advance
13	Programme	34	Payments Certificates
14	Extension of Time	E. Finishing the Contract	
15	Compensation for Delay	35	Completion Certificate
16	Contractor's quoted percentage	36	Final Account
		F. Other Conditions of Contract	
C. Quality Control		37	Currencies
17	Tests	38	Labor
18	Correction of Defects noticed during the Defect Liability Period	39	Compliance with Labor Regulations
D. Cost Control		40	Audit and Technical Examination
19	Variations - Change in original Specifications, Designs, Drawings, etc.	41	Death or Permanent Invalidity of Contractor
20	Extra Items	42	Jurisdiction



A. GENERAL

1. DEFINITIONS

- 1.1 Bill of Quantities means the priced and completed Bill of Quantities forming part of the Bid.
- 1.2 Chief Engineer: means senior most engineer of UMC, Ujjain.
- 1.3 Completion: means completion of the work as certified by the Engineer-in- Charge in accordance with provisions of agreement.
- 1.4 Contract: means the Contract between the Employer and the Contractor to execute, complete and/or maintain the work. Agreement is synonym of Contract and carries the same meaning wherever used.
- 1.5 Contract Data means the documents and other information which comprise of the Contract.
- 1.6 Contractor: means a person or legal entity whose bid to carry out the work has been accepted by the Employer.
- 1.7 Contractor's bid: means the completed bid document submitted by the Contractor to the Employer.
- 1.8 Contract amount: means the amount of contract worked out on the basis of accepted bid.
- 1.9 Completion of work: means completion of the entire contracted work. Exhaustion of quantity of any particular item mentioned in the bid document shall not imply completion of work or any component thereof.
- 1.10 Day: means the calendar day.
- 1.11 Defect: means any part of the work not completed in accordance with the specifications included in the contract.
- 1.12 Department: means Department of the State Government viz. Water Resources Department, Ujjain Municipal Corporation, Public Health Engineering Department, Rural Engineering Service and any other organization which adopts this document.
- 1.13 Drawings: means drawing including calculations and other information provided or approved by the Engineer-in-Charge.
- 1.14 Employer: means the party as defined in the Contract Data, who employs the Contractor to carry out the work. The Employer may delegate any or all functions to a person or body nominated by him for specified functions. The word Employer / Government / Department wherever used denote the Employer.
- 1.15 Engineer: means the person named in the Contract Data.
- 1.16 Engineer in charge: means the person named in the Contract Data.
- 1.17 Equipment: means the Contractor's machinery and vehicles brought temporarily to the Site for execution of work.
- 1.18 Government: means Government of Madhya Pradesh.



- 1.19 In Writing: means communicated in written form and delivered against receipt.
- 1.20 Material: means all supplies, including consumables, used by the Contractor for incorporation in the work.
- 1.21 Superintending Engineer: means Superintending Engineer-in-Charge of the Circle concerned.
- 1.22 Stipulated period of completion: means the period in which the Contractor is required to complete the work. The stipulated period is specified in the Contract Data.
- 1.23 Specification: means the specification of the work included in the Contract and any modification or addition made or approved by the Engineer-in-Charge.
- 1.24 Start Date: means the date of signing of agreement for the work.
- 1.25 Sub-Contractor: means a person or corporate body who has a Contract with the Contractor, duly authorized to carry out a part of the construction work under the Contract.
- 1.26 Temporary Work: means work designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the work.
- 1.27 Tender/Bid, Tender/Bidder: are the synonyms and carry the same meaning where ever used.
- 1.28 Variation: means any change in the work which is instructed or approved as variation under this contract.
- 1.29 Work: The expression "work" or "works" where used in these conditions shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the work by virtue of contract, contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

2. Interpretations And Documents

- 2.1 Interpretations - In the contract, except where the context requires otherwise:
 - a. words indicating one gender include all genders;
 - b. Words indicating the singular also include the plural and vice versa.
 - c. provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;
 - d. "written" or "in writing" means hand-written, type-written, printed or electronically made, and-resulting in a permanent record;
- 2.2 Documents Forming Part of Contract:
 - 1. NIT with all amendments.
 - 2. Instructions to Bidders (ITB, Bid Data Sheet with all Annexure)



3. Conditions of Contract:
 - i. Part I General Conditions of Contract and the Contract Data; with all Annexure
 - ii. Part II Special Conditions of Contract.
4. Specifications
5. Drawings
6. Bill of Quantities
7. Technical and Financial Bid
8. Agreement, and
9. Any other documents, as specified.

3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data Sheet.

4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent to the address or contact details given by the Contractor in [Annexure H of ITB]. The address and contact details for communication with the Employer/Engineer shall be as per the details given in the Contract Data. Communication between parties that are referred to in the conditions shall be in writing. The notice sent by facsimile (fax) or other electronic means (email) shall also be effective on confirmation of the transmission. The notice sent by registered post or speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service. In case of any change in address for communication, the same shall be immediately notified to Engineer-in-Charge.

5. Subcontracting

Subcontracting shall be permitted for contracts of value more than amount specified in the Contract Data with following conditions:

- a. The Contractor may subcontract up to 25 percent of the contract price with the approval of the Employer in writing but will not assign the Contract. Subcontracting shall not alter the Contractor's obligations.
- b. Following shall not form part of subcontracting:
 - i. Hiring of labour through a labour contractor.
 - ii. The purchase of Materials to be incorporated in the works.
 - iii. Hiring of plant & machinery



- iv. The sub-contractor will have to be registered in the appropriate category in the centralized registration system for contractors of the Govt. of MP.

6. Personnel

- 6.1 The Contractor shall employ for the construction work and routine maintenance the technical personnel as provided in the Annexure 1-3 of Bid Data Sheet, if applicable. If the Contractor fails to deploy required number of technical staff, recovery as specified in the Contract Data will be made from the Contractor.
- 6.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within three days and has no further connection with the Works in the Contract.

7. Force Majeure

- 7.1 The term "Force Majeure" means an exceptional event or circumstance:
 - (a) Which is beyond a Party's control,
 - (b) Which such Party could not reasonably have provided against before entering into the Contract,
 - (c) Which, having arisen, such Party could not reasonably have avoided or overcome, and
 - (d) Which is not substantially attributable to the other Party.Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:
 - (i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies,
 - (ii) Rebellion, terrorism, sabotage by persons other than the Contractor's Personnel, revolution, insurrection, military or usurped power, or civil war,
 - (iii) Riot, commotion, disorder, strike or lockout by persons other than the Contractor's Personnel,
 - (iv) Munitions of war, explosive materials, ionizing radiation or contamination by radioactivity, except as may be attributable to the Contractor's use of such munitions, explosives, radiation or radioactivity, and
 - (iv) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity.



- 7.2. In the event of either party being rendered unable by force majeure to perform any duty or discharge any responsibility arising out of the contract, the relative obligation of the party affected by such force majeure shall upon notification to the other party be suspended for the period during which force majeure event lasts. The cost and loss sustained by either party shall be borne by respective parties.
- 7.3 For the period of extension granted to the Contractor due to Force Majeure the price adjustment clause shall apply but the penalty clause shall not apply. It is clarified that this sub clause shall not give eligibility for price adjustment to contracts which are otherwise not subject to the benefit of price adjustment clause.
- 7.4 The time for performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such cause lasts. Should the delay caused by force majeure exceed twelve months, the parties to the contract shall be at liberty to foreclose the contract after holding mutual discussions.

8. Contractor's Risks

- 8.1 All risks of loss or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor.
- 1.2 All risks and consequences arising from the inaccuracies or falseness of the documents and/or information submitted by the contractor shall be the responsibility of the Contractor alone.

9. Liability for Accidents to Person

The contractor shall be deemed to have indemnified and saved harmless the Government against all action, suits, claims, demands, costs etc. arising in connection with injuries suffered by any persons employed by the contractor or his subcontractor for the works whether under the General law or under workman's compensation Act, or any other statute in force at the time of dealing with the question of the liability of employees for the injuries suffered by employees and to have taken steps properly to ensure against any claim there under.

10. Contractor to Construct the Works

- 10.1 The Contractor shall construct, install and maintain the Works in accordance with the Specifications and Drawings as specified in the Contract Data.



- 10.2 In the case of any class of work for which there is no such specification as is mentioned in Contract Data, such work shall be carried out in accordance with the instructions and requirement of the Engineer-in-charge.
- 10.3 The contractor shall supply and take upon himself the entire responsibility of the sufficiency of the scaffolding, timbering, machinery, tools and implements, and generally of all means used for the fulfilment of this contract whether such means mayor may not be approved or recommended by the Engineer.

11. Discoveries

Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

12. Dispute Resolution System

- 12.1 No dispute can be raised except before the Competent Authority as defined in Contract Data in writing giving full description and grounds of dispute. It is clarified that merely recording protest while accepting measurement and/or payment shall not be taken as raising a dispute.
- 12.2 No dispute can be raised after 45 days of its first occurrence. Any dispute raised after expiry of 45 days of its first occurrence shall not be entertained and the Employer shall not be liable for claims arising out of such dispute.
- 12.3 The Competent Authority shall decide the matter within 45 days.
- 12.4 Appeal against the order of the Competent Authority can be preferred within 30 days to the Appellate Authority as defined in the Contract Data. The Appellate Authority shall decide the dispute within 45 days.
- 12.5 Appeal against the order of the Appellate Authority can be preferred before the Madhya Pradesh Arbitration Tribunal constituted under Madhya Pradesh Madhyastham Adhikaran Adhiniyam, 1983.
- 12.6 The Contractor shall have to continue execution of the Works with due diligence notwithstanding pendency of a dispute before any authority or forum.



B. Time Control

13. Programme

- 13.1 Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order and timing for all the activities for the construction of works.
- 13.2 The program shall be supported with all the details regarding key personnel, equipment and machinery proposed to be deployed on the works for its execution. The contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/equipment being placed in field laboratory and the location of field laboratory along with the Programme.
- 13.3 An update of the Programme shall be a programme showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.
- 13.4 The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue programme has been submitted.
- 13.5 The Engineer's approval of the Programme shall not alter the Contractor's obligations.

14. Extension of Time

- 14.1 The contract is for completion of works and therefore non approval of EOT shall not in any way invalidate the contract. The contractor will have to complete the works.
- 14.2 In the event of delays attributable to the contractor, the EOT shall not be given by the Engineer-in-Charge, and the Liquidated Damages shall be levied from the contractor in accordance with the provisions of the contract.
- 14.3 In the event, the delays are not attributable to the contractor the EOT may be issued by the Engineer-in-Charge without imposition of Liquidated Damages either Suo-motto or on a written request of the contractor.



It is clarified that out of the total delays in completion of works, the EOT shall be issued only for the part, which is not attributable to the contractor. (Amended as per Govt. Order No. F-53-55-2018-19-Yo-1154 Ujjain, dated 23- 03-2018)

15. Compensation for delay

- 15.1 The time allowed for carrying out the work, as entered in the agreement, shall be strictly observed by the Contractor.
- 15.2 The time allowed for execution of the contract shall commence from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.
- 15.3 In the event milestones are laid down in the Contract Data for execution of the works, the contractor shall have to ensure strict adherence to the same.
- 15.4 Failure of the Contractor to adhere to the timelines and/or milestones shall attract such liquidated damages as is laid down in the Contract Data.
- 15.5 In the event of delay in execution of the Works as per the timelines mentioned in the Contract Data the Engineer-in-charge shall retain from the bills of the Contractor amount equal to the liquidated damages liveable until the Contractor makes such delays good. However, the Engineer-in-charge shall accept bankable security in lieu of retaining such amount.
- 15.6 If the Contractor is given extension of time after liquidated damages have been paid, the Engineer in Charge shall correct any over payment of liquidated damages by the Contractor in the next payment certificate.
- 15.7 In the event the Contractor fails to make good the delay until completion of the stipulated contract period (including extension of time) the sum so retained shall be adjusted against the liquidated damages levied.

16. Contractor's quoted percentage

The Contractor's quoted percentage rate referred to in the "Bid for works" will be deducted/ added from/to the net amount of the bill after deducting the cost of material-supplied by the department.

C. QUALITY CONTROL

17. Tests

- 17.1 The Contractor shall be responsible for:
 - a. Carrying out the tests prescribed in specifications, and



- b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.
- 17.2 The contractor shall have to establish field laboratory within the time specified and having such equipment as are specified in the Contract Data.
- 17.3 Failure of the Contractor to establish laboratory shall attract such penalty as is specified in the Contract Data.

18. Correction of Defects noticed during the Defect Liability Period

- 18.1 The Defect Liability Period of work in the contract shall be as per the Contract Data.
- 18.2 The Contractor shall promptly rectify all defects pointed out by the Engineer well before the end of the Defect Liability Period. The Defect Liability Period shall automatically stand extended until the defect is rectified.
- 18.3 If the Contractor has not corrected a Defect pertaining to the Defect Liability Period to the satisfaction of the Engineer, within the time specified by the Engineer, the Engineer will assess the cost of having the Defect corrected, and the cost of correction of the Defect shall be recovered from the Performance Security or any amount due or that may become due to the contractor and other available securities.

D. Cost Control

19. Variations –Change in original Specifications, Designs, and Drawings etc.

- 19.1 The Engineer-in-charge shall have power to make any alterations, omissions or additions to or substitutions in the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Engineer-in- charge, and such alterations, omission, additions or substitutions shall not invalidate the contract and any altered, additional or substituted 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 respects on which he agrees to do the main work.
- 19.2 The time for the completion of the work shall be extended in the proportion that the altered, additional or substituted work bears to the original contract work and the certificate of the Employer shall be conclusive as to such proportion.

**20. Extra items**

All such items which are not included in the priced BOQ shall be treated as extra items.

21. Payments for Variations and / or Extra Quantities

The rates for such additional (Extra quantity), altered or substituted work / extra items under this clause shall be worked out in accordance with the following provisions in their respective order:-

- a. The contractor is bound to carry out the additional (Extra quantity) work beyond or within estimated quantity in BOQ, at the same rates as are specified in the contract for the work.
- b. If the item is not in the priced BOQ and is included in the SOR of the department, the rate shall be arrived at by applying the quoted tender percentage on the SOR rate.
- c. If the rates for the altered or substituted work are not provided in applicable SOR - such rates will be derived from the rates for a similar class (type) of work as is provided in the contract (priced BOQ) for the work.
- d. If the rates for the altered, substituted work cannot be determined in the manner specified in the sub clause (c) above - then the rates for such composite work item shall be worked out on the basis of the concerned Schedule of Rates minus/plus the percentage quoted by the contractor.
- e. If rates for a particular part or parts of the item is not in the Schedule of Rates and the rates for the altered, or substituted work item cannot be determined in the manner specified in sub clause (b) to (d) above, the rate for such part or parts will be determined by the Competent Authority as defined in the Contract Data on the basis of the rate analysis derived out of prevailing market rates when the work was done.
- f. But under no circumstances, the contractor shall suspend the work on the plea of non-acceptability of rates on items falling under sub clause (a) to (d).
- g. If at any instance for the amount of work required for the completion of project exceeds the project cost any extension or revision of amount will be done according to Madhya Pradesh Nagar Palik Nigam Adhiniyam (up to date) 1956.
- h. In case if the item to be executed is not a part of listed BOQ or is not available with UADD SOR in force with till date amendments but the same is available with PWD SOR in force in the state the rates of such items may be taken up after due consideration and final decision will on



any such subject will be taken competent authority, which will be binding on both the parties.

In case the contractor does not accept the rate approved by the Engineer in Charge for a particular item, the contractor shall continue to carry out the item at the rates determined by the Competent Authority. The decision on the final rates payable shall be arrived at through the dispute settlement procedure.

22. No compensation for alterations in or restriction of work to be carried out

- 22.1 If at any time after the commencement of the work, the Engineer-in-charge, for any reason whatsoever, not require the whole or any part of the work as specified in the bid to be carried out; the Engineer-in-charge shall give notice in writing of the fact to the Contractor and withdraw that whole or any part of the work.
- 22.2 The Contractor shall have no claim to any payments or compensation whatsoever, on account of any profit or advantage which he might have derived from the execution of work in full or on account of any loss incurred for idle men and machinery due to any alteration or restriction of work for whatsoever reason.
- 22.3 The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work, without prejudice to his rights.

23. No Interest Payable

No interest shall be payable to the Contractor on any payment due or awarded by any authority.

24. Recovery from Contractors

Whenever any claim against the Contractor for the payment arises under the contract, the Department may be entitled to recover such sum by:

- (a) Appropriating, in part or whole of the Performance Security and Additional Performance Security, if any; and/or Security Deposit and / or any sums payable under the contract to the contractor.
- (b) If the amount recovered in accordance with (a) above is not sufficient, the balance sum may be recovered from any payment due to the contractor under any other contract of the department, including the securities which become due for release.
- (c) The department shall, further have an additional right to effect recoveries as arrears of land revenue under the M.P. Land Revenue Code.

**25. Tax**

- 25.1 The rates quoted by the Contractor shall be deemed to be inclusive of the commercial tax and other levies, duties, cases, toll, taxes of Central and State Governments, local bodies and authorities but excluding the GST applicable at the time.
- 25.2 The liability, if any, on account of quarry fees, royalties, octopi and any other taxes and duties in respect of materials actually consumed on public work, shall be borne by the Contractor.
- 25.3 Any changes in the taxes due to change in legislation or for any other reason shall not be payable to the contractor.

26. Check Measurements

- 26.1 The department reserves to itself the right to prescribe a scale of check measurement of work in general or specific scale for specific works or by other special orders.
- 26.2 Checking of measurements by superior officer shall supersede measurements by subordinate officer(s), and the former will become the basis of the payment.
- 26.3 Any over/excess payments detected, as a result of such check measurement or 'otherwise at any stage up to the date of completion of the defect liability period specified in this contract, shall be recoverable from the Contractor, as per clause 24 above.

27. Termination by Engineer in Charge

- 27.1 If the Contractor fails to carry out any obligation under the Contract, the Engineer in Charge may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.
- 27.2 The Engineer in Charge shall be entitled to terminate the Contract if the Contractor -
 - a. abandons the Works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the Contract;
 - b. the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;
 - c. without reasonable excuse fails to comply with the notice to correct a particular defect within a reasonable period of time;
 - d. the Contractor does not maintain a valid instrument of financial security as prescribed;
 - e. the Contractor has delayed the completion of the Works by such duration for which the maximum amount of liquidated damages is recoverable;



- f. If the Contractor fails to deploy machinery and equipment or personnel or set up a field laboratory as specified in the Contract Data;
 - g. If the contractor, in the judgment of the Engineer in charge has engaged in corrupt or fraudulent practices in competing for or in executing the contract;
 - h. Any other fundamental breaches as specified in the Contract Data.
- 27.3 In any of these events or circumstances, the Engineer in Charge may, upon giving 14 days' notice to the Contractor, terminate the Contract and expel the Contractor from the Site. However, in the case of subparagraph (b) or (g) of clause 27.2, the Engineer in Charge may terminate the Contract immediately.
- 27.4 Notwithstanding the above, the Engineer-in-Charge may terminate the Contract for convenience by giving notice to the Contractor

28. Payment upon Termination

- 28.1 If the contract is terminated under clause 27.3, the Engineer shall issue a certificate for The value of the work done less Advance Payments received up to the date of issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the contract Data. (As per Amended vide Govt. memo No.F-53/ 16/2012/19/Y/6842 dt. 2.11.15).
- 28.2 Payment on termination under clause 27.4 above -
If the Contract is terminated under clause 27.4 above, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.
- 28.3 If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered as per clause 24 above.

29. Performance Security

The Contractor shall have to submit performance security and additional performance security, if any, as specified in the Bid Data Sheet at the time of signing of the contract. The contractor shall have to ensure that such performance security and additional performance security, if any, remains valid for the period as specified in the Contract Data.



30. Security Deposit

- 30.1 Security Deposit shall be deducted from each running bill at the rate as specified in the Contract Data. The total amount of Security Deposit so deducted shall not exceed the percentage of Contract Price specified in the Contract Data.
- 30.2 The security deposit may be replaced by equivalent amount of bank guarantee or fixed deposit receipt assigned to the Employer, with validity up to 3 (three) months beyond the completion of Defect Liability Period/ extended Defect Liability Period.
- 30.3 The Security deposits shall be refunded of completion of defect liability period. The additional performance security shall be refunded on satisfactory completion of the work. (As per Amended vide Govt. memo No.F-53/ 16/2012/19/Yo/1317 dt. 28.02.15)

31. Price Adjustment

- 31.1 Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with following principles and procedures and as per formula given in the contract data.
 - (a) The price adjustment shall apply for the work done from the start date given in the contract data up to the end of the initial intended completion date or extensions granted by the Engineer and shall not apply to the work carried out beyond the stipulated time for reasons attributable to the contractor.
 - (b) The price adjustable shall be determined during each month from the formula given in the contract data.
 - (c) Following expression and meaning are assigned to the work done during each month:
 $R = \text{Total value of work during the month. It would include the amount of secured advance granted, if any, during the month, less the amount of secured advance recovered, if any during the month. It will exclude value of works executed under variations for which no price adjustment shall be payable. (Amended as per Govt. Order No. F-53-55-2018-19-Yo-1154 Ujjain, dated 23-03-2018)}$
- 31.2 To the extent that full compensation for any rise or fall in costs to the contractor is not covered by the provisions of this or other clauses in the contract, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs. (Amended as per Govt. Order No. F-53-55-2018-19-Yo-1154 Ujjain, dated 23-03-2018)

**32. Mobilization and Construction Machinery Advance**

- ~~32.1 Payment of advances shall be applicable if provided in the Contract Data.~~
- ~~32.2 If applicable, the Engineer in Charge shall make interest bearing advance payment to the contractor of the amounts stated in the Contract Data, against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized / scheduled bank, in the name as stated in the Contract Data, in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the contractor.~~
- ~~32.3 The rate of interest chargeable shall be as per Contract Data.~~
- ~~32.4 The construction machinery advance, if applicable, shall be limited to 80% of the cost of construction machinery and admissible only for new construction machinery.~~
- ~~32.5 The advance payment shall be recovered as stated in the Contract Data by deducting proportionate amounts from payment otherwise due to the Contractor. No account shall be taken of the advance payment or its recovery in assessing valuations of work done, variations, price adjustments, compensation events, or liquidated damages.~~

33. Secured Advance

- ~~33.1 Payment of Secured Advance shall be applicable if provided in the Contract Data.~~
- ~~33.2 If applicable, the Engineer shall make advance payment against materials intended for but not yet incorporated in the Works and against provision by the contractor of an unconditional Bank Guarantee in a form and by a nationalized/ scheduled bank, in the name as stated in the Contract Data, in amounts equal to the advance payment. The guarantee shall remain effective until the advance payment has been adjusted, but the amount of the guarantee shall be progressively reduced by the amounts adjusted by the contractor.~~
- ~~33.3 The amount of secured advance and conditions to be fulfilled shall be as stipulated in the Contract Data.~~
- ~~33.4 The Secured Advance paid shall be recovered as stated in the Contract Data.~~

34. Payment Certificates

The payment to the contractor will be as follows for construction work:



- (a) The Contractor shall submit to the Engineer monthly statements of the value of the work executed less the cumulative amount certified previously, supported with detailed measurement of the items of work executed.
- (b) The Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.
- (c) The value of work executed shall be determined, based on the measurements approved by the Engineer/ Engineer-in-charge.
- (d) The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.
- (e) The value of work executed shall also include the valuation of Variations and Compensation Events.
- (f) All payments shall be adjusted for deductions for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law.
- (g) The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.
- (h) Payment of intermediate certificate shall be regarded as payments by way of advance against the final payment and not as payments for work actually done and completed.
- (i) Intermediate payment shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or be considered as an admission of the due performance of the contractor any part thereof, in any respect or the occurring of any claim.
- (j) The payment of final bill shall be governed by the provisions of clause 36 of GCC.

E. Finishing the Contract

35. Completion Certificate

- 35.1 A Completion Certificate in the prescribed format in Contract Data shall be issued by the Engineer-in-Charge after physical completion of the Work.
- 35.2 After final payment to the Contractor, a Final Completion Certificate in the prescribed format in the Contract Data shall be issued by the Engineer-in- Charge.

**36. Final Account**

- 36.1 The Contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable for works under the Contract within 21 days of issue of certificate of physical completion of works. The Engineer shall issue a Defects Liability Certificate and certify any payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If the account is not correct or complete, the Engineer shall issue within 45 days a schedule that states the scope of the corrections or additions that are necessary. If the Account is still unsatisfactory after it has been resubmitted, the matter shall be referred to the Competent Authority as defined in the Contract Data, who shall decide on the amount payable to the Contractor after hearing the Contractor and the Engineer in Charge.
- 36.2 In case the account is not received within 21 days of issue of Certificate of Completion as provided in clause 32.1 above, the Engineer shall proceed to finalize the account and issue a payment certificate within 28 days.

F. Other Conditions of Contract**37. Currencies**

All payments will be made in Indian Rupees.

38. Labour

- 38.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.
- 38.2 The Contractor shall, if required by the Engineer, deliver to the Engineer a return in detail, in such form and at such intervals as the Engineer may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Engineer may require.

39. Compliance with Labour Regulations

During continuance of the Contract, the Contractor and his sub-Contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued



under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given in the Contract Data. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made their under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications / byelaws / Acts / Rules / regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct from any money due to the Contractor including his amount of performance security. The Employer/Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

40. Audit and Technical Examination

Government shall have the right to cause an audit and technical examination of the works and the final bill of the contract including all supporting vouchers, abstract etc. to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the contractor under the contract or any work claimed by him to have been done under the contract and found not to, have been executed, the Contractor shall be liable to refund the amount of overpayment and it shall be lawful for Government to recover the same from him in the manner prescribed in clause 24 above and if it is found that the Contractor was paid less than what was due to him, under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by Government to the Contractor.

41. Death or Permanent Invalidity of Contractor

If the Contractor is an individual or a proprietary concern, partnership concern, dies during the currency of the contract or becomes permanently incapacitated, where the surviving partners are only minors, the contract shall be closed without levying any damages/ compensation as provided for in clause 28.2 of the contract agreement. However, if the competent authority is satisfied about the competence of the survivors, then the competent authority shall enter into a fresh agreement for the remaining work strictly on the same terms and conditions under which the contract was awarded.



42. Jurisdiction

This contract has been entered into the State of Madhya Pradesh, and its validity, construction, interpretation and legal effect shall be subjected to the courts at the place where this agreement is entered into. No other jurisdiction shall be applicable.

[END OF GCC]



CONTRACT DATA SHEET

GCC Clause	Particulars		Data
1.14	Employer		Ujjain Municipal Corporation, Ujjain
1.15	Engineer		Assistant Engineer & Sub-engineer of UMC
1.16	Engineer in Charge		Executive Engineer, Ujjain Municipal Corporation, Ujjain
1.22	Stipulated Period of Completion		12 months including monsoon
3	Language & Law of Contract		English & Indian Contracts Act, 1872
4	Address & contact details of the Contractor		As per 'Annexure-H'
	Address & contact details of the Employer/ Engineer – phone, Fax, e-mail.		Ujjain Municipal Corporation, Chhatrapati Shivaji Bhavan, Koyla Fatak, Agar Road, Ujjain M.P. Phone 0734-2535244 Email: commujain@mpurban.gov.in , eephenpnujain@gmail.com
5	Subcontracting permitted for the Contract Value		Not applicable
6	Technical Personnel to be provided by the contractor		As per 'Annexure-I' (Format I-3)
	Penalty, if required Technical Personnel not employed		Rs 30,000 / month for each Graduate Engineer and Rs 18,000 / month for each Diploma Engineer/ITI Surveyor
10	Specifications		As per 'Annexure - E'
	Drawings		As per 'Annexure - N'
12	Competent Authority for deciding dispute under Dispute Resolution System		Superintending Engineer, UMC, Ujjain
	Appellate Authority for deciding dispute under Dispute Resolution System		Engineer in Chief, Directorate UADD, Bhopal
13	Period for submission of updated construction program		(a) Every 1 months OR (b) at the end of every milestone, whichever is less
	Amount to be withheld for not submitting construction program in the prescribed period		@ 1 % (one) percent of contract amount, subject to a maximum of Rs. 50,000/-.



14	Competent Authority for granting Time Extension		Employer after recommendation of Superintending Engineer, UMC
15	Milestones laid down for the contract		Yes
15	If yes, details of Milestones		As per 'Annexure - O' or as below, if not mentioned in Annexure -O: Milestone 1:- 1/8 th of the whole work before 1/4 th of the whole time allowed has elapsed, Milestone 2:- 3/8 th of the whole work before 1/2 th of the whole time allowed has elapsed Milestone 3:- 3/4 th of the whole work before 3/4 th of the whole time allowed has elapsed Milestone 4:- Complete work within the stipulated time
	Liquidated damage		As per 'Annexure - P'
17	List of equipment for lab		As per 'Annexure - Q'
	Time to establish lab		30 days from date of signing of the Agreement
	Penalty for not establishing field Laboratory		1% of Contract Amount per month, subject to a maximum of Rs. 50,000/- per month of delay.
18	Defect Liability Period		5 years



			Note: In accordance with clause 18 the defect observed in the works during the Defect Liability Period shall be intimated by the Engineer-in- Charge to the contractor and the contractor shall rectify the defects promptly. In case the defects are not removed in reasonable time, the same can be done by the Engineer-in-Charge by way of – (a) deploying departmental labour and material OR (b) engaging a contractor by issuing a work order at contract rate/SOR rate OR (c) sanctioning supplementary work in an existing agreement to a contractor for zonal works or other similar work OR (d) Inviting open tender OR (e) combination of above The Engineer-in-Charge shall assess the cost of such rectification which shall be recoverable from the contractor from his Performance Security or any amount due or that may become due to him and from other available securities. If this amount is not sufficient to meet the expenses incurred on rectification, the balance amount may be recovered as Land Revenue Arrears as per MPLRC. (Amended vide Govt. memo No. 1400/1246/2018/19/Yo Ujjaindt.06-04-18)
21	Competent Authority for determining the rate		a) For variation in Items/ Components of BOQ and beyond BOQ (new items) within the contract amount –Superintending Engineer of UMC. b) For variation above contract amount – State Level Technical Committee (SLTC).
27	Any other condition for breach of contract		Yes, as below: If the contractor fails to achieve 50% financial progress in any milestone and / or fails to achieve 75% financial progress in two consecutive milestones
28	Penalty		(a) Penalty shall include forfeiture of Security deposit as per clause 30 of General Conditions of Contract and the percentage to apply to the value of work not completed representing the Employers additional cost for completing the works which shall be 20 percent and (b) Liquidated Damages imposed as per clause 15 or Performance Security (Guarantee) including Additional



			Performance Security (Guarantee), if any, as per clause 29 of General Conditions of Contract, whichever is higher (Amended vide Govt. memo No.F-53/16/2012/19/KS/6842 dt. 2.11.15)
29	Performance Guarantee (Security) shall be valid up to		The upfront Bank Guarantee against Performance Security shall be taken for a period as mentioned below – (a) Contract Period + 3 months It is clarified that in case the construction period of the work is extended beyond the stipulated completion period, the Bank Guarantee against PG shall have to be extended by the contractor for the relevant period so as to satisfy the validity criteria mentioned above. (Amended vide Govt. memo No. 1400/1246/2018/19/Yo Ujjain dt. 06-04-18)
30	Security Deposit to be deducted from each running bill		At the rate of 7% of Amount of Running Bill
	Maximum Limit of deduction of Security Deposit		Up to 7% of the Final Contract Amount.
	Refund of Security Deposit		The total Security Deposit deducted from the running bills shall be refunded (equivalent BG released) only after the completion of the Performance Guarantee Period / Extended Performance Guarantee period, if any (Amended vide Govt. Memo No. 1400/1246/2018/19/Yo Ujjain dt. 06-04-18)
31	Price adjustment shall be applicable		As per Annexure R and as below: (a) The price Adjustment shall apply only in respect of Labour, Cement, Steel, Plant & Machinery Spares, POL and Other Materials components. (b) Price Adjustment shall be applicable only in case of Probable Amount of Contract (PAC) in NIT is more than Rs 10 Cr. This clause shall not have any bearing with the Contract Amount.
	Weightages of Components of work	Component	Percentage of Component in the work
			Wet Infrastructure works such as Water Supply / Sewerage works
		Labour Component – P_1	10%
		Cement Component – P_c	23%



		Steel Component – P_s	12%
		POL Component – P_F	10%
		Plant & Machinery Spares Component – P_P	5%
		Other Materials Component – P_M	40%
32	Mobilization and Construction Machinery Advance Applicable		No Mobilization and Construction Machinery Advance Payable
	If yes, Unconditional Bank Guarantee		Not Applicable
	If yes, Rate of interest chargeable on advances		Not Applicable
	If yes, Type & Amount of Advance payment that can be paid		Not Applicable
	If yes, Recovery of advance payment		Not Applicable
33	Secured Advance Applicable		Not Applicable
	If yes, Unconditional Bank Guarantee		Not Applicable
	If yes, Amount of Secured Advance		Not Applicable
	If yes, Conditions for secured advance		Not Applicable
	If yes, Recovery of Secured advance		Not Applicable
35	Completion Certificate – after physical completion of the Work		As per 'Annexure - U'
	Final Completion Certificate – after final payment on completion of the Work		As per 'Annexure - V'
36	Competent Authority		Commissioner, Ujjain Municipal Corporation, Ujjain



39	Salient Features of some of the major labour laws that are applicable		As per 'Annexure - W'
41	Competent Authority		Ujjain Municipal Corporation, Ujjain
42	Area of Jurisdiction		Ujjain, Madhya Pradesh



Annexure – N
(See Clause 10 of Section 3 – GCC)

DRAWINGS

List of Drawings:

“Attached separately.”



Annexure – O

(See Clause 15 of Section 3 – GCC)

DETAILS OF MILESTONES

As per BID DATA SHEET and CONTRACT DATA SHEET

**Annexure – P**

(See Clause 15 of Section 3 – GCC)

COMPENSATION FOR DELAY

If the contractor fails to achieve the milestones, and the delay in execution of work is attributable to the contractor/the Employer shall retain an amount from the sums payable and due to the contractor as per following scale –

- i. Slippage up to 25% in financial target during the milestone under consideration - 2.5% of the work remained unexecuted in the related time span.
- ii. Slippage exceeding 25% but up to 50% in financial target during the milestone under consideration 5% of the work remained unexecuted in the related time span.
- i. Slippage exceeding 50% but up to 75% in financial target during the milestone under consideration -7.5% of the work remained unexecuted in the related time span.
- ii. Slippage exceeding 75% in financial target during the milestone under consideration -10% of the work remained unexecuted in the related time span.

Note: *For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the Contractor shall be considered. The slippage on any milestone is if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions which are granted to the Contractor for either Employer's default or Force Majeure, the compensation shall be levied on the contractor at the rate of 0.05% per day of delay limited to a maximum of 10% of contract price. The decision of Superintending Engineer shall be final and binding upon both parties.*



Annexure – Q

(See Clause 17 of Section 3 – GCC)

LIST OF EQUIPMENT FOR QUALITY CONTROL LAB

As per 'Format I-9'

Annexure – R

(See Clause 31 of Section 3 – GCC)

PRICE ADJUSTMENT

The formula for adjustment of prices are –

R = Value of work (as defined in Clause 31.1 of Conditions of Contract)

Adjustment for Labour Component –

- (i) Price adjustment for increase or decrease in the cost due to labour shall be paid in accordance with the following formula.

$$V_L = 0.85 \times P_1/100 \times R(L_i - L_o) / L_o$$

V_L = increase or decrease in the cost of work during the month under consideration due to changes in rates for local Labour.

L_o = the consumer price index for industrial workers for the State on 28 days preceding the date of opening of Technical Bids as published by Labour Bureau, Ministry of Labour, Government of India.

L_i = the consumer price index for industrial workers for the State for the month under consideration as published by Labour Bureau, Ministry of Labour component of the work.

P_1 = Percentage of Labour component of the work.

Adjustment for Cement Component –

- (ii) Price adjustment for increase or decrease in the cost of cement procured by the contractor shall be paid in accordance with the following formula:

$$V_c = 0.85 \times P_c/100 \times R \times (C_1 - C_o)/C_o$$

V_c = increase or decrease in the cost of work during the month under Consideration due to changes in rates for cement.

C_o = All India wholesale price index for Pozzolana Cement on 28 days preceding the date of opening of Technical Bids, as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

C_1 = All India average wholesale price index for cement for the month under consideration as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

P_c = Percentage of cement component of the work



Adjustment of Steel Component –

- (iii) Price adjustment for increase or decrease in the cost of steel procured by the Contractor shall be paid in accordance with the following formula:

$$V_s = 0.85 \times P_s \times /100 \times R \times (S_1 - S_0) / S_0$$

V_s = Increase or decrease in the cost of work during the month under consideration due to changes in the rates for steel.

S_0 = All India wholesale price index for mild steel long products / flats on 28 days preceding the date of opening of Technical Bids, as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

S_i = All India average wholesale price index for mild steel long products / flats for the month under consideration as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

P_s = Percentage of steel component of the work.

Note: For the application of this clause, index of mild steel long products / flats has been Chosen to represent steel group. In any work only one of the indices i.e. Either for long products or for flats shall be used as decided by the Employer/ Executing Agency.

Adjustment of POL (Fuel and Lubricant) Component –

- (v) Price adjustment for increase or decrease in cost of POL (Fuel and Lubricant) shall be paid in accordance with the following formula:

$$V_f = 0.85 \times P_f / 100 \times R \times (F_i - F_o) / F_o$$

V_f = Increase or decrease in the cost of work during the month under consideration due to changes in rates for fuel and lubricants.

F_o = The official retail price of High-Speed Diesel (HSD) at the existing consumer pumps of IOC nearest to the work site on the day 28 days prior to the date of opening of Technical Bids.

F_i = The official retail price of HSD at the existing consumer pumps of IOC nearest to the work site for the 15th day of month under consideration.

P_f = Percentage of fuel and lubricants component of the work.

Note : For the application of this clause, the price of High-Speed Diesel oil has been chosen to represent fuel and lubricants group.



Adjustment for Plant and Machinery Spares component –

- (vi) Price adjustment for increase or decrease in the cost of plant and machinery spares procured by the Contractor shall be paid in accordance with the following formula:

$$V_p = 0.85 \times P_p / 100 \times R \times (P_i - P_o) / P_o$$

V_p = Increase or decrease in the cost of work during the month under consideration due to changes in rates for plant and machinery spares.

P_o = All India wholesale price index for manufacturer of machines for mining / quarrying and construction on 28 days preceding the date of opening of Technical Bids, as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

P_i = All India wholesale price index for manufacturer of machines for mining / quarrying and construction for the month under consideration as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

P_p = Percentage of plant and machinery spares component of the work.

Note: *For the application of this clause, index of manufacturer of machines for mining / quarrying and construction has been chosen to represent the Plant and Machinery Spares group.*

Adjustment of Other Material Component –

- (vii) Price adjustment for increase or decrease in cost of local materials other than cement, Steel and POL procured by the contractor shall be paid in accordance with the following formula:

$$V_m = 0.85 \times P_m / 100 \times R \times (M_i - M_o) / M_o$$

V_m = Increase or decrease in the cost of work during the month under consideration due to changes in rates for local materials other than cement, Steel and POL.

M_o = All India wholesale price index (all commodities) on 28 days preceding the date of opening of Technical Bids, as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

M_i = All India wholesale price index (all commodities) for the month under consideration as published by the Economic Advisor, DIPP, Ministry of Commerce & Industry Government of India, New Delhi.

P_m = Percentage of local material component (other than Cement, Steel and POL) of the work. Plant and Machinery spares component of the work.

(Amended As per vide Govt. Order No. F-53-55-2018-19-Yo-1154 Ujjain dated 23-3-2018)

The following percentages will govern the price adjustment for the entire contract:

Sr. No.	Component	Nature of Work
		Water supply/Sewer age Networks
1	2	5
1	Labour component - P_1	10%
2	Cement component - P_c	23%
3	Steel component - P_s	12%
4	POL component - P_f	10%
5	Plant & Machinery Spares component - P_p	5%
6	Other Materials Component - P_m	40%

Wholesale price index (WPI) (April 2026)-8.30%

Consumer price index (CPI) April 2026)-3.48%

Basic rate of Cement/OPC-Rs. 5,300/- per MT (as per MPPWD SOR 2025)

Basic rate of Steel-Rs. 44,500/- per MT (as per MPPWD SOR 2025)

Note: Ordinarily the 7 components shown above are components of civil works. However, for specific works in which some components not included in the aforementioned 7 components, form a substantial part of the works the same can be provided using similar formula and related indices. In all cases the sum total of percentage of different components shall be 100%.

(Amended As per vide Govt. Order No. F-53-55-2018-19-Yo-1314 Ujjain dated 28-3-2018)

**Annexure — S**

(See Clause 32 of Section 3 — GCC)

**BANK GUARANTEE FORM FOR MOBILIZATION AND CONSTRUCTION
MACHINERY ADVANCE**

To,

_____ [name of Employer]
 _____ [address of Employer]
 _____ [name of Contractor]

In accordance with the provisions of the General Conditions of Contract, clause 31 ("Mobilization and Construction Machinery Advance") of the above-mentioned Contract _____ [name and address of Contractor] (hereinafter called "the Contractor") shall deposit with _____ [name of Employer] a bank guarantee to guarantee his proper and faithful performance under the said Clause of the Contract in an amount of _____ [amount of Guarantee] [in words].

We, the _____ [bank of financial institution], as instructed by the Contractor, agree unconditionally and irrevocably to guarantee as primary obligator and not as surety merely, the payment to _____ [name of Employer] on his first demand without whatsoever right of obligation on our part and without his first claim to the Contractor, in the amount not exceeding _____ [amount of guarantee] [in words].

We further agree that no change or addition to or other modification of the terms of the Contractor or Works to be performed thereunder or of any of the Contract documents which may be made between _____ [name of Employer] and the Contractor, shall in any way release us from any liability under this guarantee, and we hereby waive notice of any such change, addition or modification.

This guarantee shall remain valid and in full effect from the date of the advance payment under the Contract until _____ [name of Employer] receives full repayment of the same amount from the Contractor.

Yours truly,

Signature and Seal:

Name of Bank/Financial Institution: _____ Address: _____

Date: _____

An amount shall be inserted by the Bank or Financial Institution representing the amount of the Advance Payment and denominated in Indian Rupees.

**Annexure—T**

(See Clause 33 of Section 3—GCC)

~~BANK GUARANTEE FORM FOR SECURED ADVANCE~~**~~INDENTURE FOR SECURED ADVANCES~~**

This indenture made on the _____ day of _____ 20____ BETWEEN _____
(hereinafter called the contractor which expression shall where the context so admits
or implies be deemed to include his executors, administrators and assigns) or the one
part and the Employer of the other part.

Whereas by an agreement dated _____ (hereinafter called the said
agreement) the contractor has agreed.

AND WHEREAS the contractor has applied to the Employer that he may be
allowed advanced on the security of materials absolutely belonging to him and brought
by him to the site of the works the subject of the said agreement for use in the
construction of such of the works as he has undertaken to executive at rates fixed for
the finished work (inclusive of the cost of materials and labour and other charges)

AND WHEREAS the Employer has agreed to advance to the Contractor the
sum of Rupees _____ on the security of materials
the quantities and other particulars of which are detailed in Accounts of Secured
Advance attached to the Running account Bill for the said works signed by the
Contractor on _____ and the Employer has reserved
to himself the option of making any further advance or advances on the security of
other materials brought by the Contractor to the site of the said works.

Now THIS INDENTURE WITNESSETH that in pursuance of the said
agreement and in consideration of the sum of Rupees _____ on or before
the execution of these presents paid to the Contractor by the Employer (the receipt
where of the Contractor doth hereby acknowledge) and of such further advances (if
any) as may be made to him as aforesaid the Contractor both hereby covenant and
agree with the President and declare as follows: That the said sum of Rupees
_____ so advanced by the Employer to

- (1) the Contractor as aforesaid and all or any further sum of sums advanced as
aforesaid shall be employed by the Contractor in or towards expending the
execution of the said works and for no other purpose whatsoever.
- (2) That the materials details in the said Account of Secured Advances which have
been offered to and accepted by the Employer as security are absolutely the
Contractor's own propriety and free from encumbrances of any kind and the
contractor will not make any application for or receive a further advance on the
security of materials which are not absolutely his own property and free from
encumbrances of any kind and the Contractor indemnified the Employer against



- ~~all claims to any materials in respect of which an advance has be made to him as aforesaid.~~
- ~~(3) That the materials detailed in the said account of Secured Advances and all other materials on the security of which any further advance or advances may hereafter be made as aforesaid (hereafter called the said materials) shall be used by the Contractor solely in the execution of the said works in accordance with the directions of the Engineer.~~
- ~~(4) That the Contractor shall make at his own cost all necessary and adequate arrangements for the proper watch, safe custody and protection against all risks of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection by the Engineer or any officer authorized by him. In the event of the said materials or any part thereof being stolen, destroyed or damaged or becoming deteriorated in a greater degree than is due to reasonable use and wear thereof the Contractor will forthwith replace the same with other materials of like quality or repair and make good the same required by the Engineer.~~
- ~~(5) That the said materials shall not be removed from the site of the said works except with the written permission of the Engineer or an officer authorized by him on that behalf.~~
- ~~(6) That the advances shall be repayable in full when or before the Contract receives payment from the Employer of the price payable to him for the said works under the terms and provisions of the said agreement. Provided that if any intermediate payments are made to the Contractor on account of work done than on the occasion of each such payment the Employer will be at liberty to make a recovery from the Contractor's bill for such payment by deducting there from the value of the said materials than actually used in the construction and in respect of which recovery has not been made previously, the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.~~
- ~~(7) That if the Contractor shall at any time make any default in the performance or observance in any respect of any of the terms and provisions of the said agreement or of these presents the total amount of the advance or advances that may still be owing of the Employer shall immediately on the happening of such default be re-payable by the Contractor to be the Employer together with interest thereon at twelve percent per annum from the date or' respective dates of such advance or advances to the date of repayment and with all costs, charges, damages and expenses incurred by the Employer in or for the recovery thereof or the enforcement of this security or otherwise by reason of the default of the Contractor and the Contractor hereby covenants and agrees with the Employer to reply and pay the same respectively to him accordingly~~



- ~~(8) — That the Contractor hereby charges all the said materials with the repayment to the Employer of the said sum of Rupees and any further sum of sums advanced as aforesaid and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS and it is hereby agreed and declared that notwithstanding anything in the said agreement and without prejudice to the power contained therein if and whenever the covenant for payment and repayment here in before contained shall become enforceable and the money owing shall not be paid in accordance there with the Employer may at any time thereafter adopt all or any of the following courses as he may deem best:~~
- ~~(a) — Seize and utilize the said materials or any part thereof in the completion of the said works on behalf of the contractor in accordance with the provision in that behalf contained in the said agreement debiting the contractor with the actual cost of effecting such completion and the amount due to the contractor with the value of work done as if he had carried it out in accordance with the said agreement and at the rates thereby provided. If the balance is against the contractor, he is to pay same to the Employer on demand.~~
- ~~(b) — Remove and sell by public auction the seized materials or any part thereof and out of the moneys arising from the sale retain all the sums aforesaid repayable or payable to the Employer under these presents and pay over the surplus (if any) to the Contractor.~~
- ~~(c) — Deduct all or any part of the moneys owing out of the security deposit or any sum due to the Contractor under the said agreement.~~
- ~~(9) — That except in the event of such default on the part of the contractor as aforesaid interest on the said advance shall not be payable.~~
- ~~(10) — That in the event of any conflict between the provisions of these presents and the said agreement the provisions of these presents shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been here in before expressly provided for the same shall be referred to the Employer whose decision shall be final and the provision of the Indian Arbitration Act for the time being in force shall apply to any such reference.~~



Annexure – U
(See Clause 35 of Section 3 – GCC)

PHYSICAL COMPLETION CERTIFICATE

Name of Work: _____

Agreement No. : _____ Date: _____

Amount of Contract: Rs. _____

Name of Agency: _____

Used M B No.: _____

Last measurement recorded

a. Page No.& MB No.: _____

b. Date: _____

Certified that the above-mentioned work was physically completed on _____
(date) and taken over on _____ (date) and that I have satisfied
myself to best of my ability that the work has been done properly.

Date of issue: _____

**Executive Engineer,
Ujjain Municipal Corporation
Ujjain**



Annexure – V

(See Clause 35 of Section 3 – GCC)

FINAL COMPLETION CERTIFICATE

Name of Work: _____

Agreement No. : _____ Date: _____

Amount of Contract: Rs. _____

Name of Agency: _____

Used M B No.: _____

Last measurement recorded

a. Page No.& MB No.: _____

b. Date: _____

Certified that the above-mentioned work was physically completed on _____
(date) and taken over on _____ (date).

Agreement amount Rs. _____

Final amount paid to contractor Rs. _____

Incumbency of officers for the work

I have satisfied myself to best of my ability that the work has been done properly.

Date of issue: _____

**Executive Engineer,
Ujjain Municipal Corporation
Ujjain**

**Annexure – W**

(See Clause 39 of Section 3 – GCC)

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE

- a) **Workmen Compensation Act, 1923:** - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.
- b) **Payment of Gratuity Act, 1972:** - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days' (say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.
- c) **Employees P.F. and Miscellaneous Provision Act, 1952:** - The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:
 - i. Pension or family pension on retirement or death as the case may be.
 - ii. Deposit linked insurance on the death in harness of the worker.
 - iii. Payment of P.F. accumulation on retirement/death etc.
- d) **Maternity Benefit Act, 1951:** - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.
- e) **Contract labour (Regulation & Abolition) Act, 1970:** - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if they employ prescribed minimum (say 20) or more contract labour.
- f) **Minimum Wages Act, 1948:** - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is scheduled employment. Construction of buildings, roads, and runways is scheduled employment.
- g) **Payment of Wages Act, 1936:** - It lays down as to by what date the wages are to be paid, when they will be paid and what deductions can be made from the wages of the workers.
- h) **Equal Remuneration Act, 1979:** - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.
- i) **Payment of Bonus Act, 1965:** - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus within the prescribed range of percentage of



wages to employees drawing up to the prescribed amount of wages calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.

- j) **Industrial Disputes Act, 1947:** - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or Closing down the establishment.
- k) **Industrial Employment (Standing Orders) Act, 1946:** - It is applicable to all establishments employing prescribed minimum (say, LOA, or 50). The Act provides laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets these certified by the designated Authority.
- l) **Trade Unions Act, 1926:** - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.
- m) **Child labour (Prohibition & Regulation) Act, 1986:** - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.
- n) **Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act, 1979:** - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.
- o) **The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act, 1996 and the Cess Act of 1996:** - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay Cess at a rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the workplace etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.



- p) **Factories Act 1948:** - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.



SECTION – 3

Conditions of Contract

Part II – Special Conditions of Contract

1. Tax, Duties on Materials

All charge on account of Octroi, excise duties, terminal tax, GST/sales tax, and Govt. duties / tax etc. on material procured for the works from any source shall be borne by the contractor. No separate form shall be supplied by UMC for this purpose. GST will be paid extra by Authority at prevailing rate to the Contractor.

2. Submission of project schedule:

Contractor has to submit his work plan, methodology and Quality assurance plan to complete the work within the timeline with the tender documents and also as and when demanded by the UMC during the running project to monitoring the progress of the Project only.

3. Reserved Rights

UMC, Ujjain reserves the right to –

- a) Waive any qualifying criteria or information in any tender as a special case and to reject any or all tenders without assigning any reason thereof.
- b) Increase / decrease the scope of work & also split the tender in two or more contracts without assigning any reason even after the work is awarded.
- c) Collect any required documents after bid opening and also reserves the right for rejection/acceptance of any tender.

4. Testing charge

0.5% testing charges shall be deducted from each R.A. Bill and shall be released after work completion.

- a) 10% test will be carried out at Government Laboratory.
- b) 10% test will be carried out at the Government approved Laboratory.
- c) 80% test will be carried out at the Plant/Field Laboratory of this work.

5. Laboratory at Plant

The Contractor shall setup a laboratory along with all the calibrated equipment for testing of all materials used for the said work with a Material Engineer in the Laboratory having experience of not less than 3 years in Laboratory testing. The Contractor has to prepare Quality Assurance Plan (QAP) as per tender document and it should be get approved by UMC as well as he has to do all testing as per approved QAP and all reports to be submitted along with Running Bills duly verified by Engineer-in-Charge and/or his authorized representative.

**6. Liquidated Damages**

- 6.1. If the Contractor fails to complete the works within the original or extended Timeline, the Contractor shall pay penalty of 10% of amount of actual remaining work. The amount of work for which the scope of contractor is reduced shall not be considered for the calculation of Liquidated Damages.
- 6.2. The stipulated Timeline for the tender is 12 months (including monsoon period).

7. Liability of Contractor towards conducting geotechnical investigation, CBR test for roads, Total Station / DGPS Survey of Streets, different utilities, encroachment, etc.

The contractor shall initially / primarily carry out geotechnical investigation, CBR test for roads, demarcation with a DGPS / TSS survey (item included in tender) of the proposed street / road included in the tender marking the proposed centreline of the street, location of existing utilities over ground if any such as manholes, catchpits, trees, religious places and other landmarks, power distribution poles/boards, encroachments etc. before starting the work on site. Contractor shall have to submit such survey report and Auto CAD drawing to UMC as well as the Principal Architect. Attributes of the TS/DGPS Survey and Geotechnical investigation shall be provided by UMC and Principal Architect.

8. Performance of Bidder

If works carried out by the bidder in last three years are found to be of inferior quality or if the bidder is alleged for malpractice in the tenders allotted to him in last three year, then to accept or reject his tender, shall be sole discretion of Commissioner, UMC i.e. Commissioner, UMC at his sole discretion may accept or reject the tender and this decision shall be bound to the bidder.

The contractor must execute the work by maintaining all Quality aspects/parameters mentioned in the tender terms and conditions. Contractor is also bound to submit all supporting Genuine Original documents and if any discrepancy found in such documents as well as in the executed Work with respect to Quality/Quantity at any stage of work or even after completion of work, it will solely be the contractor's responsibility. The Contractor is bound to prove originality of all documents submitted by them and if any of the documents are found to be false/fake then Commissioner, UMC has right to take any action / penalty / punishment against contractor.

- 8.1. If the Contractor indulged into any malpractice and/or used any inferior quality and/or the construction of street is found to be of an inferior quality under this contract than in such case Commissioner, UMC has the right to debar/ blacklist them for three years.



- 8.2. It is contractor liability to communicate with other Government Authorities / Private Agencies / Person for carry out all type of necessary approval that which will be required for the work and liaison with UMC. The cost of utility shifting, felling of trees etc. shall be borne by UMC or by the entity owning such utility, if UMC so directs, and in the event of any delay in shifting thereof, the Contractor shall be given a corresponding extension of time for the completion of works.
- 8.3. Contractor must submit KMZ file of basemap and proposed design which can be overlayed on Google Earth software for individual streets at the time of completion of each street in all respect. The Kmz file overlaid on google earth software shall be submitted in drawing form in 2 copies in scale and size as decided by UMC.

9. Co-Certification of Contractor's Bills by the Principal Architect

- 9.1. Co-certification of the Contractor's bills is to ensure that executed works meet the design intent from the point of view of Architectural workmanship & finishes.
- 9.2. Co-certification by Principal Architect shall not absolve the Client's PMC Team or Site Supervision Team from their overall responsibility of bill certification and release of payment. The Client's PMC Team / Site Supervision Team shall forward the Contractor's bill to Principal Architect for co-certification only after carrying out detailed measurement checks, ascertaining that works claimed in the bill are constructed in accordance with issued drawings / specifications and that they meet the Quality Assurance Plan.

10. Shop Drawing

- 10.1. Contractor has to prepare the shop drawings based on the intent drawings and wherever specified in the overall tender document.
- 10.2. The Contractor shall prepare and submit a detailed program for the preparation and submission of the shop drawings along with integrated program chart immediately upon receipt of the Engineer's order to commence the works. The Programme, which will be subject to the scrutiny of the Engineer-in-charge, shall be compatible with the Programme for the construction works.
- 10.3. After Approval of the shop drawings by Engineer in charge & Principal Architect; sampling and mock-up shall be carried out at site.
- 10.4. After preparation of the mock-up and its approval from Engineer in charge & Principal Architect, the item shall be taken up for full fledged execution.
- 10.5. When a shop drawing is revised, the particulars of the current revision shall be clearly marked or circled to facilitate checking. All prior revision numbers and references of drawings superseded by the current issue shall also be clearly shown.
- 10.6. Cost of all shop drawings, or form work drawings and details to be furnished by the Contractor shall be deemed to be included in his tendered rates for the work. Accordingly, approval to shop drawings or other fabrication drawings shall not be construed as authorizing award of additional work.



- 10.7. All the drawings supplied by the consultant/Client to the contractor shall be carefully studied by the contractor before implementation and any discrepancy /changes /suggestions shall be brought to the notice of consultant within 15 days of issuance for clearance.

11. Sample Approval and Mock-up at site

- 11.1. The concept of sample & mock-ups is to assess the performance parameters/ quality standards for any specified item in the project. The main objective of the section is to address most issues prior to construction, and to minimize disruption in the critical path of the construction program. It is elaborated as follows;

- (a) Determine whether the Contractor possesses required skill level necessary to construct the activity, assemblies or systems such that the built construction will satisfy specified requirements
- (b) To understand the sequence of operations and discuss alternative sequencing options if any
- (c) To assess the standard of workmanship and aesthetics that are to be replicated throughout the project
- (d) To recognize and resolve potential areas of conflict prior to the commencement of construction

11.2. Sample

- Contractor shall submit samples of an item/material from preferred make-list for approval by Engineer-In-Charge & Principal Architect. Before proposing any make from the make list, contractor has to ensure that the product of same is confirming to the specifications/parameters mentioned in BOQ item, technical specifications and other applicable relevant codes. Submitted samples shall be approved by Principal Architect & Engineer in charge and their decision shall be final and binding to contractor. Contractor shall submit photograph of approved sample having sign/stamp of Engineer in charge & Principal Architect to all relevant authorities.
- Contractor shall plan for placing a yard room which can be used for storing indoor and outdoor samples. The samples kept in this room shall be marked, labelled and stored in an orderly manner to enable easy access at any time during the entire course of construction, up to completion.
- No deviation from the approved list of makes shall be permitted. In case certain items of equivalent is mentioned, the same shall be got approved from Engineer in charge & Principal Architect before ordering.

11.3. Mock-up

- After sample approval, Contractor shall prepare a mock-up as per drawing.
- Payment shall be made for approved sample/mock-up only.
- Payment for any additional items during the Mock-up shall be considered only



if such items have received formal approval by UMC.

- The space for mock-up shall be arranged by UMC free of cost.
- Contractor to prepare complete mock-up within one month from the date of start of work, to the satisfaction of the Engineer-in-charge and the Principal Architect.
- Approval shall be given by the Engineer-in-charge and the Principal Architect. It shall not absolve the Contractor from the responsibility of replacing defective material brought on site or materials used in the work in case they are found defective at a later date. The Contractor shall have no claim to any payment or compensation whatsoever on account of any such materials being rejected by the Engineer-in-charge or Principal Architect.

12. Workmanship and Quality Control

- 12.1. The Principal Architect shall have the authority to conduct inspections of the works at site at any stage of execution, as deemed necessary, to assess compliance with the approved drawings, specifications, and quality standards.
- 12.2. Based on such inspections, the Principal Architect may issue written Inspection Reports highlighting observations, deficiencies, or non-conformities in workmanship and quality.
- 12.3. The Contractor shall be obligated to promptly review and address all observations raised in the Inspection Reports and undertake necessary corrective actions within a maximum period of fourteen (14) days from the date of issuance of such report, or earlier where the nature of the observation so warrants.
- 12.4. The Contractor shall submit a detailed Compliance Report for each Inspection Report, clearly outlining the corrective measures undertaken, along with supporting documentation, for review and acceptance by the Principal Architect.
- 12.5. Failure to comply with the above within the stipulated time may be treated as a breach of contractual obligations and may attract appropriate action as per the conditions of contract.

13. Design Change Request Protocol

- 13.1. Any requirement for deviation, modification, or change from the approved design, arising due to site conditions, technical constraints, or any other reason, shall be formally initiated as a Design Change Request by the Contractor.
- 13.2. All such Design Change Requests shall be routed strictly through the designated Site Representative and shall adhere to the established project hierarchy and communication protocol to ensure proper documentation, traceability, and accountability.
- 13.3. No change in design shall be executed at site without prior written approval from the competent authority as defined in the project hierarchy.



- 13.4. The Contractor shall provide all necessary supporting details, including justification, along with the Design Change Request to facilitate timely review and decision-making.
- 13.5. Any work carried out without following the above procedure shall be deemed unauthorized and shall be liable for rejection or rectification at the Contractor's own cost.

14. Indemnity

- 14.1. The Contractor shall indemnify the Employer of the Contract and also its Engineer-in-charge, Consultants, Project Management Consultant, as a security or protection against all financial burden accruing/ arising out of any loss, expense, cost, damage or any other legal consequences caused due to an act or omission by the conduct of the Contractor (Indemnifier) or any third party on an event.
- 14.2. All legal implications need to be handled by contractor, and no extra claim shall be made for same.

15. Copyrights, Patent rights and Intellectual Property Rights

- 15.1. The Contractor shall indemnify and hold the Employer & Principal Architect harmless against and from any other claim which arises out of or in relation to (i) the Contractor's design, manufacture, construction or execution of the Works, (ii) the use of Contractor's Equipment, or (iii) the proper use of the Works.
- 15.2. The Contractor shall also indemnify and keep the Employer, Engineer-in-charge, Principal Architect, Consultants, Project Management Consultant, harmless against any action, claims, proceedings relating to the infringement or use of any patent or design of any alleged patent or design rights or design trademarks and shall pay any royalties or other charges which may be payable in respect of any article or material, or part thereof included in the Contract. In the event of any claims made under or action brought against the Engineer in charge, Consultants and UMC in respect of any such matters as aforesaid, the Contractor shall be immediately notified thereof and the Contractor shall be at liberty, at his own expense, to settle any dispute or to conduct any litigation that may arise there from.
- 15.3. In this Clause, "infringement" means an infringement (or alleged infringement) of any patent, registered design, copyright, trademark, trade name, trade secret or other Rights intellectual or industrial property right relating to the Works; and "claim" means a claim (or proceedings pursuing a claim) alleging an infringement.
- 15.4. This clause shall be governed by the following statutes
 - a) The Patents Act, 1970;
 - b) The Trademarks Act, 1999;
 - c) The Copyright Act, 1957;
 - d) The Designs Act, 2000;

**16. Declaration by the Contractor**

All the products and accessories shown in the shop drawing/s or data sheet/s submitted by contractor/ Specialist Agency have been checked for their copyright and patent compliance by the Contractor/ Specialist Agency. Any violation of the said compliance will be the sole responsibility of the Contractor/ Specialist Agency who has prepared this drawing. If the product or accessories installed on site deviates from the ones shown in the drawing, the Contractor/ Specialist Agency will have to take prior approval for the same with the Engineer in charge & Principal Architect. In case of any dispute arising from copyright or patent violation by the products installed on site, the Contractor/ Specialist Agency shall be solely responsible for all legal compliance that arises from the said violation. Engineer in charge, Principal Architect, Consultants and UMC are not liable and shall not be made party to any consequences arising out of such violation.

17. Other Special Conditions

- Interested bidder shall go through all the drawings and designs of each street before quoting the tender and may also ask clarification in pre-bid meeting for better understanding of Street Design and items of tenders included for execution to avoid conflicts at the time of execution.
- Bidders are advised to carefully read the item description for special notes, modification introduced in description compared to SOR description before quoting/submitting the bid. No additional or extra item claim or objection regarding the same shall be entertained at later stage.
- Dumping/Stacking of excavated earth is prohibited within ROW. It shall be stacked outside ROW, up to lead as mentioned in the item & as directed by Engineer-in-charge.
- Interested bidder/s shall visit the site as mentioned above at his / her own cost before quoting the tender. No Cost shall be paid to interested bidder by Client (UMC) for such site visits.
- Timely Procurement of all type of material shall be bidder's responsibility.
- Interested bidder shall note that the project requires coordination with multiple departments of the Ujjain Administration such as Ujjain Municipal Corporation, local departments for electricity, gas, other infrastructure services, smart city, and other relevant stakeholders & service providing agencies like Torrent, Adani Gas, BSNL, and other communication cable agencies like Reliance Jio, TATA, Air-Tel etc. Bidder shall coordinate with all such departments / agencies for smooth execution of the work as & when required.
- Utmost safety precautions like signages of "work in progress" / safety barricades / reflective signage / traffic diversion etc must be successful bidder's responsibility. Any fatal accident or any type of incident occurring due to negligence during entire execution and due to which, if any legal issues or any issues created Suo moto by anyone or any relevant authorities, then it shall be



completely Successful Bidder's Responsibility. The decision of any such authorities / court shall be binding to Successful Bidder.

- IRC SP-55 provides safety guidelines for traffic management and protective measures during road construction and maintenance to ensure worker and road user safety.
- Bidder shall get clearance from City Traffic Police Department for Traffic Diversion and vehicle permit and for any other activities if required.
- Successful bidder shall start the work simultaneously at all locations as per available stretch.
- Bidder shall stack the material on site in such a way that it should not obstruct traffic movement, and no accident occurs.
- The Scope of Work may change i.e. either one or more than one street / road mentioned in the tender may be either dropped or one or more than one street / road may be added. Thus, there are possibilities of reduction in scope of work or increase in scope of work. Bidder shall quote tender accordingly. In such case bidder shall not be paid any type of compensation for reduction in scope of work at the same time bidder is bound to execute the work if scope is increased at his approved tender rate.
- The contractor shall separately provide transportation facility for UMC staff appointed on his Batch mix plant. Vehicle provided for this purpose shall be a Four-Wheeler in good operational condition with Driver. The contractor shall not be paid any extra for the same.
- Contractor to prepare and submit the As-built drawings in 4 Sets of Hard Copy as well as in soft copy.
- Contractor can work for 24 hours a day, 7 days a week.
- Trial run and testing shall be completed up to the satisfaction of the Engineer-in-charge prior to handing over and issuance of completion of works' certificate.
- O&M shall start from the date of completion / handover.
- Excavation quantity and timbering / trenching quantity shall be measured as actual as per site requirements and as agreed by Engineer-in-charge for measurement and billing purposes.
- **Project Vehicle:-** For site, Minimum 2 vehicles (7-seater) brand new fully loaded four-wheeler with A.C. shall be provided to the employee of UMC for site supervision of the work. The Cost of running, maintenance, fuel / vehicle charging unit cost per month, driver salary as per UMC norms, insurance with sole responsibility, etc. complete will be borne by contractor. The vehicle shall be required anywhere and at site of road work for the use of UMC. The vehicle will run through out the period of contract incl. Sunday/holidays. The vehicle must be handed over to UMC within the 15 days after the work order is issued. Vehicle will be handed over to contractor after 90 days of final bill sanction of tender. Penalty of Rs. 45,000 per vehicle per month shall be levied and



deducted in Running Bill / Deposit of contractor for not providing vehicle as stipulated.

Site office and other facilities:

- Successful bidder/Contractor must submit a detailed layout plan of the labour camp, site office, batching plant, storage/casting/fabrication yards for approval by the Engineer-in-charge before mobilization
- Successful bidder/Contractor is responsible for identifying, acquiring, and paying for the land required, unless provided by the owner. Locations must avoid environmentally sensitive areas and be approved for use.
- Successful bidder/Contractor shall have to coordinate with client/relevant authority for obtaining services connections for establishment of labour camp, site office, batching plant, casting yard, fabrication yard, storage yard. Cost of the same shall be borne by successful bidder/contractor.
- Successful bidder/Contractor shall establish labour camp with all necessary facilities according to prevailing labour law/code/act.
- Successful bidder/Contractor shall provide well-equipped site office (pukka building/container) for their staff and UMC authority for the complete duration of contract including O&M duration. Following facilities are to be provided:
 - i. Office area of 100 sq.m.
 - ii. Well-ventilated sitting area with lighting and fans and with AC Cabins of 10 sq. m. each and conference cum meeting room with conference table, revolving chairs, tv/screen with Video conferencing capabilities.
 - iii. Tables, chairs and cupboards for storage of appropriate size suitable for offices.
 - iv. Two Nos. 12th Gen Core i7 Windows 11 Home 27-inch (68.6 cm) FHD IPS Desktop (16GB DDR4 RAM/1TB SSD+256GB/Win 11/Wireless Keyboard and Mouse Combo/MSO/IR Privacy Camera/ Black) with latest AutoCAD license version.
 - v. Two All-in-1 type of Printers - capable of scan/colour copy/colour print up to A3 size page
 - vi. Drinking water facility
 - vii. Provision of changing room, rest room, toilet, washroom, etc.

Batching Plant:

- Successful bidder/Contractor shall establish batching plant, casting yard, fabrication yard, storage yard as required, in the vicinity of the project area, to meet the project timeline, expedite the progress of work and reduce the lead time required for transportation.
- Upon project completion, all temporary structures, facilities, and waste must be removed. The site must be restored to its original condition.

**Engineer In Charge's Decisions:**

- Except where otherwise specifically stated, the Engineer in charge will decide contractual matters between the Employer and the Contractor as specified in the contract.
- Except as expressly stated in the contract, the Engineer shall have no authority to relieve the contractor of any of his obligations under the contract.
- Engineer shall act impartially while dealing with the contractual matters arising between the Contractor and the Employer while
 - Giving decisions, opinion or consent,
 - Expressing his satisfaction or approval,
 - Determining value, or
 - Otherwise taking decisions which may affect the rights and obligations of the Employer or the Contractor

Other Contractors

The Contractor shall cooperate and share the site with other contractors, public authorities, utilities, and the Employer as and when required without prejudice to any of his contractual obligations. The Contractor shall as referred to in the Contract Data, also provide facilities and services for them as mentioned by the Engineer. The employer may modify the schedule of other contractors and shall notify the contractor of any such modification.

Insurance

- The Contractor shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Commencement Date to the end of the Defects Liability Period, in the amounts and deductibles as stated below and the contract data, for the following:
 - (a) Loss of or damage to the Works, Plant and Materials. (Minimum full replacement costs and additional 15% costs),
 - (b) Loss of or damage to Contractors Equipment and other things at site (minimum full replacement costs),
 - (c) Loss of or damage of property and personnel (other than the Works, Plant, Materials and Equipment in connection with the Contract), i.e. Third-Party Insurance; and
 - (d) Personal injury or death. (i.e. Workmen compensation policy)
- Policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Commencement Date. All such insurance policies shall provide for compensation to be payable in the types and proportions of currencies required to rectify the loss or damage incurred.
- No work (Temporary or Permanent) shall be permitted at site in absence of proper insurance policies and up to date payment of premium.



- The responsibility of any amounts not insured or not recovered from the insurer shall be borne by the Contractor in accordance with their responsibilities as defined in these clauses.
- The insurance policy shall include a cross-liability clause such that the insurance shall apply to the Contractor and the Employer as separate insured.
- The minimum amount of insurance shall be as specified in these clauses and the Contract data. In the event of mismatch insurance shall be for higher amount.
- The Contractor shall keep notified the insurer of changes in the nature, extent or programme for the execution of the works and ensure the adequacy of the insurances at all the times in accordance with the terms of the contract.

Site Investigation Reports

The bidder is advised to inspect and examine the site and its surroundings and satisfy himself with the nature and extent of site and work, the hydrological and climatic conditions the means of access to the site, the constraints of space for stacking material/machinery, labour etc. he requires, if any, weather conditions at site, general ground/subsoil conditions etc. or any other circumstances which may affect or influence their bid. No claim, whatsoever, shall be entertained from the bidder, on the plea that the information supplied by the Owner is insufficient or is at variance to the actual site conditions.

Safety

The Contractor shall have full regard throughout execution, completion and defects liability period to following safety aspects and shall take all necessary steps to ensure that danger to safety is avoided all the time in respect of –

- a. Safety of the works
 - b. Safety of the Contractors employees and all the persons directly or indirectly engaged by him for the works
 - c. Safety of all the employees including persons working on other contracts of Employer at the same site of the Employer and Engineers employees engaged at work site.
 - d. Any authorised third-party persons on the site.
 - e. Contractor's plant and equipment
- Contractor shall provide and maintain at his costs all lights, guards, fencing, warning signs, watching when and where necessary or required by Engineer or by any duly constituted authority for the protection of the works or for the safety and convenience of the public or others.
 - Safety officers & stewards must be deployed in adequate numbers as per the instructions of Client / Engineer in Charge, by the Contractor during the execution stage as work is near to the riverbanks. Necessary Fine & penalties up to maximum of Rs 20 Lacs per Incident can be imposed by Client if the contractor doesn't maintain adequate safety staff & practises.



- Contractor shall take all reasonable steps to protect the environment on and off the site and avoid damage or nuisance to persons or property of the public and others arising as a consequence of his method of operation.
- The contractor shall maintain in good condition all work throughout execution, completion and defects liability period. The contractor shall be responsible for and to make good all injuries, damages and repairs, rendered necessary by fire, rain, traffic, floods or other causes.
- All the scaffolding work, wherever required for the execution of work, shall be provided by the contractor. Nothing extra shall be payable on this account. It shall be provided strictly with double scaffolding system with all the accessories etc. with adjustable suitable working platforms to access the areas, with ease for working and inspection. It shall be designed to take all incidental loads. It should cater to the safety features for workmen. It shall be ensured that no damage is caused to any structure due to scaffolding.
- All temporary warning/ caution boards display such as "Construction Work in progress", "keep away", "No parking" etc. shall be provided and displayed during day as well as nighttime by the contractor, wherever required and as directed by the Engineer.
- Arrangement of temporary water and electricity and telephone connection required, by him, shall be made by the contractor at his own cost and also necessary permissions directly from relevant Owners shall be obtained by him under intimation to the Owner. Also, all initial and running charges and security deposit, if any in this regard shall be borne by him. The contractor shall abide by all the rules/ bye laws applicable in this regard and he shall be solely responsible for any penalty on account of violation of any of the rules I byelaws in this regard.
- The contractor shall be responsible for maintenance and watch and ward of the complete installation and shall also be responsible for any pilferage, theft, damage, penalty etc. in this regard. The contractor shall indemnify the Owner against any claim arising out of pilferage / theft, damage, penalty etc. whatsoever on this account. Security deposit for the work shall be released only after the clearance is obtained from the local authorities from whom temporary electric/ water I telephone connection have been obtained by the contractor.
- The contractor shall depute Site Engineers & skilled workers as required for the work. Necessary protective and safety equipment's shall be provided to them by the contractor at his own cost and used at site. Safety Officers shall be deputed by Contractor in reasonable numbers.

**Security & Traffic Arrangements**

- In event of any restriction being imposed by the UMC, Traffic Department or any other local governing body associated with the project, on the working or movement of labour, materials, the contractor shall strictly follow all such restrictions or instructions issued regarding the same and nothing extra shall be payable to the contractor on account of such restrictions or instructions.
- In case of loss of time on this account if any, shall have to be made up by generating additional resources etc.
- General security restrictions are given as under:
 - i. The movement of trucks and vehicles shall be regulated in accordance with rules and regulations as approved by competent authorities.
 - ii. The contractor shall inform in advance, if required, the truck registration numbers ownership of the trucks, names and addresses of the drivers for necessary action by the security agency.
 - iii. As and when there will be security requirements, certain additional restrictions can be imposed as per the requirement of the situation.
 - iv. No claim whatsoever will be entertained by the Owner on account of any restriction that can be imposed as per the requirement of the situation.
- No inflammable materials including P.O.L shall be allowed to be stored in huge quantity at site. However, reasonable quantity may be permitted for storage, subject to the compliance of all rules/instructions issued by the relevant authorities and as per the direction of Engineer -in- Charge in this regard.
- The contractor shall save harmless and indemnify the Employer in respect of all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters in so far as the Contractor is responsible thereof.

Possession of the Site

- The Contractor shall commence the work as soon as is reasonably possible on receipt of the "issue of work order" from the Engineer.
- The Employer shall give possession of parts of the Site to the Contractor from time to time as agreed in the contract in the order in which such portions will be made available to the Contractor. This shall be based on the contractor's construction programme and method of construction.
- The site of work shall be always kept clean. The excavated material shall be disposed off as directed by the Engineer, from the premises and all necessary permissions in this regard from the local bodies shall be obtained by the contractor. The water / slush / bentonite slurry etc. shall not be allowed to be collected at site or to be discharged into public drainage system. The work shall be carried out in such a way that the area is kept clean and tidy without causing any nuisance due to overflowing or spilling of bentonite slurry or any other material all over the place. Nothing extra shall be payable on this account.



- If the Contractor suffers delays and /or incurs costs on account of delays in giving possession of site from the Employer in accordance with sub clause 20.2 and 20.4, the Engineer shall then decide if any extension of time after taking necessary approvals.

Avoidance to damage of roads

The Contractor shall ensure that no damage to roads and bridges on the route to the sites occurs due to his or his subcontractor's traffic. He shall ensure minimum possible hindrance to the traffic movements on public roads and bridges due to his materials, plant, temporary works etc. No materials shall be stacked on public roads and thoroughfares. Contractor shall get the approval of "Traffic Management Plan". Employer shall assist the contractor in getting the necessary approval from the concerned departments. The Cost incurred shall be borne by the Contractor.

Transport of Contractor's equipment

The Contractor shall specifically notify the Employer and the Engineer in case he plans to transport materials, equipment, plant etc. which might induce damages to the roads, in that case all the repair & rehabilitation will be done by contractor at his own cost.

Contractor to keep site clean

During the execution of the work, the Contractor shall keep the site clean. All wreckage rubbish, excess materials, temporary works no longer required will be removed from site.

Clearance of site on completion

The Contractor shall clear away and remove all Contractors equipment, surplus materials, rubbish, temporary works & Sheds of every kind, except those Contractors equipment, surplus materials, rubbish, temporary works that may be required by him during the Defects Liability period and leave the site clean and in a workmanlike condition to the satisfaction of the Engineer on issue of the Taking Over Certificate.

Management Meetings

- Either the Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.
- The Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be



decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

- A meeting shall be conducted by the Employer/Joint Committee to review the complete status of work once every month.

Early Intimation

- The Contractor is to intimate the Engineer at the earliest opportunity of specific likely future events or circumstances that may affect the quantity of the work, increase the Contract Price, or delay the execution of works. The Engineer may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.
- The Contractor shall cooperate with the Engineer in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the Engineer.

Payments

- Payments shall be adjusted for deductions for other recoveries in terms of the contract and taxes at source, as applicable under the law. The employer shall pay the contractor the amounts certified by the Engineer.
- No payment of interest shall be made to the contractor for delayed payment if any. If an amount certified is increased or decreased in a later date certificate due to corrections in previous certificates or as a result of an award from Arbitration, Contractor shall be paid or recovered, such amount only. The Contractor shall not be paid any interest upon such delayed payment.

Cost of Repairs

Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Liability periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

Taking Over

When the whole of the Works has been substantially completed and have satisfactorily passed any Tests on Completion prescribed by the contract, the Contractor may give a notice to that effect to the Engineer, with a copy to the Employer, accompanied by a written undertaking to finish with due expedition any outstanding work during the Defects Liability Period. Such notice and undertaking shall be deemed to be a request by the Contractor for the Engineer to issue a Taking over Certificate in respect of the works. The Engineer shall, within 21 days of the delivery of such a notice, either issue to the Contractor with a copy to the Employer, a Taking over Certificate, stating the date on which,



in his opinion, the Works were substantially completed in accordance with the Contract, or give instructions in writing to the Contractor, specifying all the work which, in the Engineer's opinion, is required to be done by the Contractor before the issue of such certificate. The Engineer shall also notify the Contractor of any defects in the works affecting substantial completion that may appear after the instruction and before completion of the works specified therein. The Contractor shall be entitled to receive such taking over certificate within 21 days of completion, to the satisfaction of the Engineer, of the Works so specified and remedying any defects so notified.

The Contractor shall be deemed to have undertaken to complete with due expedition any outstanding work in that part of Permanent Works during the Defects Liability Period.

Default of Contractor

If the Contractor enters into voluntary or involuntary bankruptcy, liquidation or dissolution or becomes insolvent, or makes an arrangement with, or assignment in favour of, his creditors, or agrees to execute the contract under a committee of inspection of his creditors, or if a receiver, administrator, trustee or liquidator appointed over any substantial part of his assets, or if, under any law or regulations relating to reorganisation, arrangement or readjustment of debts, proceedings are commenced against the Contractor or resolution passed in connection with dissolution or liquidation or if any steps are taken to enforce any security interest over a substantial part of the Contractor's assets, or if any act is done, or event occurs with respect to the Contractor or his assets which, under any applicable law has a substantially similar effect to any of the foregoing acts or events, or if the Contractor has contravened the sub clause regarding assignment and subletting or has an execution levied on his goods, or if the Engineer certifies to the Employer with a copy to the Contractor, that, in his opinion, the Contractor:

- a. Has repudiated the Contract,
 - b. without reasonable excuse has failed
 - i. to commence the Works in accordance with sub clause 17.1 or
 - ii. to proceed with the Works, or any section thereof, within 28 days after receiving notice pursuant to sub clause 29.3 and 29.4,
 - iii. to comply with a notice issued pursuant to sub clause 37 within 28 days after having received it, or an instruction issued pursuant to sub clause 38 despite previous warning from the Engineer, in writing, is otherwise persistently or flagrantly neglecting to comply with any of his obligations under the contract or,
 - iv. has contravened sub clause regarding sub-contracting,
- then the Employer may, after giving 14 days' notice to the Contractor, enter upon the site and the Works, and terminate the employment of the Contractor without thereby releasing the Contractor from any of his obligations or liabilities under the Contract, or affecting the rights and authorities conferred on the



Employer or the Engineer by the Contract, and may complete the works, or employ any other contractor to complete the Works. The Employer or such other contractor may use the Contractor's equipment, Temporary Works or material as he or they may think proper.

Relation with Public Authorities

The contractor shall comply with all obligations arising out of legal orders and directions that may be given to him from time to time, by any local or public authorities and shall pay out of his own money, all charges becoming payable to such authorities. He shall co-ordinate his activities during execution, with all agencies including UMC, Design Consultants, Project Management consultants, agencies like Irrigation Department, land & Revenue Department, Railways Department, Local Pollution Control Board, State Electricity Distribution Company, Local Telephone Exchange and their representatives as and when required without any dispute. UMC will assist in getting all necessary approval, but final responsibility will be of the Contractor.

Royalties

- The Contractor shall pay all royalties, rent and other payments or compensation if any for getting construction materials other than embankment material required for the Works, however same will not be reimbursed. The Royalty for Embankment material procured directly by contractor shall be paid by Employer. The Royalty for Embankment material procured directly from projects within UMC limit, shall not be contractor's responsibility.
- No GST on Royalty will be paid by UMC.

Changes in Cost and Legislation

There shall be no addition or deduction from the Contract Price due to changes to any National or State Statute, Ordinance, Decree, Law, Regulation or byelaw. The adjustment to Contract Price affected under various sub clauses detailed in clause 41 shall be deemed to cover such costs.

Sequential opening of tender packages 4, 5 & 6

To maintain transparency and ensure fair evaluation, the Department will process the tenders using the following step-by-step methodology:

Sequential Financial Impact: Because a contractor's Bid Capacity reduces dynamically as they are awarded or positioned as the lowest bidder (L-1) in upcoming projects, the Department cannot open all packages at once. Sequential opening ensures that a bidder is not awarded more total work than their verified financial and technical capacity permits.



STEP-BY-STEP OPENING PROCEDURE

Stage 1: Evaluation of Package 4

Opening: The Department will first open and evaluate the bids for Package 4.

Capacity Assessment: Every bidder's total Bid Capacity will be assessed against the requirements of Package 4.

Outcome: The eligible L-1 bidder for Package 4 will be determined.

Stage 2: Evaluation of Package 5

Opening: Next, the Department will move to Package 5.

Dynamic Capacity Update: Before evaluating Package 5, the available Bid Capacity of the bidder who secured L-1 in Package 4 will be reduced by the value of Package 4.

Assessment: The remaining Bid Capacity of all bidders will then be checked to see if they can qualify for Package 5.

Note: If the Package 4 winner's remaining capacity falls below the required threshold for Package 5, they will become ineligible for Package 5, even if their initial bid was competitive.

Stage 3: Evaluation of Package 6

Opening: Finally, the Department will open Package 6.

Final Capacity Update: The available Bid Capacities will again be updated by deducting any work already committed or designated as L-1 from package 4 and 5.

Assessment: Bidders will be evaluated based on the net available capacity left at this final stage.

Key Takeaways for Bidders

If a bidder qualifies for multiple packages based on their initial documents but only has the total financial capacity to execute one major package, the sequential opening prevents them from accidentally locking down multiple packages.

The order of processing is strictly Package 4, Package 5 & Package 6. Bidders should strategically plan their pricing and capacity calculations keeping this specific sequence in mind.

**Payment Breakup:**

Bidders shall be liable to receive payment against the items executable as mentioned below:

Payment breakup	Upon material Procurement	Upon installation/ laying/ erecting	Upon testing and commissioning	After Completion of O&M	Total
Water Supply works	30%	30%	30%	10%	100%
Sewerage Disposal Works	30%	30%	30%	10%	100%

OPERATION AND MAINTENANCE OF WATER SUPPLY NETWORK:

The Operation and Maintenance (O&M) of the Water Supply Network shall be undertaken in accordance with the applicable provisions, standards, procedures, and guidelines contained in the following documents, including all subsequent amendments and revisions thereto:

- a) CPHEEO Manual on Operation and Maintenance of Water Supply System – 2005; and
 - b) CPWD General Conditions of Contract (GCC) 2023 for Maintenance Works.
- In the event of any discrepancy, inconsistency, or conflict between the provisions of the above documents and the Contract Documents, the provisions of the Contract Documents shall prevail.

OPERATION AND MAINTENANCE OF SEWERAGE DISPOSAL NETWORK:

The Operation and Maintenance (O&M) of the Sewerage Disposal Network shall be undertaken in accordance with the applicable provisions, standards, procedures, and guidelines contained in the following documents, including all subsequent amendments and revisions thereto:

- a) CPHEEO Manual on Sewerage and Sewage Treatment Systems – 2013 – Part B – Operation & Maintenance; and
 - b) CPWD General Conditions of Contract (GCC) 2023 for Maintenance Works.
- In the event of any discrepancy, inconsistency, or conflict between the provisions of the above documents and the Contract Documents, the provisions of the Contract Documents shall prevail.



SECTION – 4
Bill of Quantities

“Attached separately.”



SECTION – 5

Agreement Form

AGREEMENT

This agreement, made on the _____ between the Executive Engineer Ujjain Municipal Corporation, Ujjain (name and address of Employer) hereinafter called "the Employer" and _____ (name and address of contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the _____ (name and identification number of Contract) (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a cost of Rs _____

NOW THIS AGREEMENT WITNESSED as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
 - i. letter of Acceptance
 - ii. Contractor's Bid
 - iii. Condition of Contract: General and Special
 - iv. Contract Data v. Bid Data vi. Drawings
 - vii. Bill of Quantities and
 - viii. Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____ was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said _____ in the presence of:

Executive Engineer
UMC Mains. Dn. No. 2 Ujjain

Binding Signature of Contractor



मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय, भोपाल

क्रमांक एफ-53/2/2011/यो/19/

भोपाल, दिनांक.....

विषय:- लोक निर्माण विभाग में अव्यवहारिक (unworkable rates) निविदा प्राप्त होने पर की जाने वाली कार्यवाही ।

संदर्भ:- शासन का आदेश क्रमांक एफ-53/2/2011/यो/19/5788, दिनांक 25.10.2011

:: आदेश ::

राज्य शासन एतद् द्वारा लोक निर्माण विभाग में अव्यवहारिक (unworkable) निविदा प्राप्त होने पर की जाने वाली कार्यवाही के संबंध में उपरोक्त संदर्भित आदेश की कंडिका (iv) में निम्नानुसार सशोधन जारी करता है :

(iv) उपरोक्तानुसार अव्यवहारिक दरों (unworkable rates) के लिए ली गई अतिरिक्त परफार्मेंस गारन्टी (additional performance guarantee) की राशि ठेकेदार द्वारा मापदण्डानुसार सम्पादित कराये गये कार्य की मात्रा के अनुपात में समय समय पर विमुक्त (Release) की जाये ।

उपरोक्त आदेश तत्काल प्रभाव से लागू किया जाता है एवं इसके जारी दिनांक के पश्चात् आमंत्रित सभी निविदाओं में अतिरिक्त विशेष शर्त के रूप में जोड़ा जाये ।

मध्यप्रदेश के राज्यपाल के नाम से
तथा आदेशानुसार

(आर.के. मेहरा)
सचिव, म.प्र.शासन
लोक निर्माण विभाग

पृ० क्रमांक : एफ-53/2/2011/यो/19/ 2807

भोपाल, दिनांक 11-7-18

- प्रतिलिपि :-
1. प्रधान संचालक, म.प्र. सड़क विकास निगम, भोपाल
 2. प्रमुख अभियंता, लोक निर्माण विभाग, भोपाल
 3. परियोजना संचालक, पी.आई.यू. लोक निर्माण विभाग, भोपाल
 4. समस्त मुख्य अभियंता, लोक निर्माण विभाग, म.प्र.
 5. समस्त अतिरिक्त परियोजना संचालक, पी.आई.यू. लो.नि.वि. म.प्र.
 6. समस्त अधीक्षण यंत्री, मण्डल कार्यालय, लोक निर्माण विभाग, म.प्र.
 7. समस्त कार्यपालन यंत्री, लोक निर्माण विभाग संभाग, म.प्र.
 8. समस्त सहायी परियोजना यंत्री, पी.आई.यू. लो.नि.वि. म.प्र.
 9. निज सचिव मा० मंत्रीजी, म.प्र.शासन, लोक निर्माण विभाग, भोपाल.
- की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु अग्रेषित ।

सचिव, 11-7-18
मध्यप्रदेश शासन
लोक निर्माण विभाग



कार्यालय प्रमुख अभियंता,

म.प्र. लोक निर्माण विभाग, निर्माण भवन, अरेरा हिल्स, भोपाल (म.प्र.)

Website : www.mp.gov.in/pwdmp

Email : pwdbhop@mp.nic.in

Phone No.- 0755-2551485, Fax - 2556527

क्रमांक/संचार/लोनिवि/2016/1302

भोपाल, दिनांक 28-04-2016

प्रति,

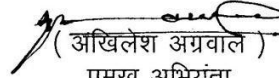
समस्त मुख्य अभियंता/
समस्त अधीक्षण यंत्री/
समस्त कार्यपालन यंत्री
लोक निर्माण विभाग मध्यप्रदेश।

विषय:- कांकीट के कार्यों में मैन्युफैक्चर्ड सैंड के उपयोग के संबंध में।

—00—

यह पाया गया है कि कतिपय रिजिड पेवमेंट्स के कार्यों में जिनमें मैन्युफैक्चर्ड सैंड का उपयोग किया गया है की ऊपरी सतह खराब हो गई है। प्रारंभिक अनुमान के आधार पर मैन्युफैक्चर्ड सैंड का एब्रेशन रेजिस्टेंस अपेक्षाकृत कम होने के कारण ऐसी स्थिति निर्मित हो सकती है। इस विषय पर विस्तृत विचार-विमर्श/परामर्श किया जा रहा है। इस बीच यह निर्देशित किया जाता है कि कांकीट के कार्यों में मैन्युफैक्चर्ड सैंड तथा नैचुरल सैंड को मिलाकर उपयोग किया जाये। जिसमें मैन्युफैक्चर्ड सैंड का उपयोग 50 प्रतिशत से अधिक न किया जाये।

उपरोक्त निर्देशों का समावेश अनुबंध में भी किया जाये।


(अखिलेश अग्रवाल)

प्रमुख अभियंता

लोक निर्माण विभाग, मध्यप्रदेश

भोपाल, दिनांक 28-04-2016

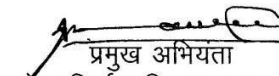
पृ. क्रमांक/संचार/लोनिवि/2016/1303

प्रतिलिपि:-

1. निज सहायक, माननीय मंत्री जी लोक निर्माण विभाग मध्यप्रदेश।
2. प्रमुख सचिव, म.प्र. शासन लोक निर्माण विभाग, मंत्रालय भोपाल। मुख्य अभियंताओं की बैठक दिनांक 28-4-2016 में दिये गये निर्देशों के क्रम में सूचनार्थ।
3. मुख्य अभियंता, यो/ब, कार्यालय प्रमुख अभियंता लोक निर्माण विभाग भोपाल।
4. मुख्य अभियंता एमडीआर, कार्यालय प्रमुख अभियंता लोक निर्माण विभाग भोपाल।
5. सामान्य शाखा/संचार, कार्यालय प्रमुख अभियंता लोक निर्माण विभाग भोपाल।

Dr. Mothe
11/11/16

20/4/16


प्रमुख अभियंता

लोक निर्माण विभाग, मध्यप्रदेश



मध्यप्रदेश शासन
लोक निर्माण विभाग मंत्रालय
वल्लभ भवन, भोपाल

क्रमांक एक - 58/ 24/15/19/यो

भोपाल दिनांक ...8-2015

प्रति,

प्रमुख अभियंता
लोक निर्माण विभाग
27-28, निर्माण भवन, अरेरा हिल्स,
भोपाल।

विषय:- विभाग में किये जा रहे डामरीकरण कार्यों में प्रयुक्त की जाने वाली मशीनरी के संबंध में।

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विभाग में चल रहे डामरीकरण कार्यों के संबंध में कार्यों की गुणवत्ता सुनिश्चित करने के लिये प्रयुक्त की जाने वाली मशीनरी के संबंध में निम्नानुसार निर्देश जारी किये जाते हैं:-

1. सड़कों के ऐसे समस्त कार्य जिनमें डामरीकरण के कार्य में डीबीएम तथा बीसी का प्रावधान रखा गया है, वहां पर न्युमेटिक टायर रोलर का उपयोग का प्रावधान निविदा प्रपत्र में किया जाये। ऐसे समस्त कार्य जिनमें डामरीकरण कार्य की लागत रु. 5 करोड़ से अधिक की है तथा जिनमें डीबीएम तथा बीसी का प्रावधान रखा गया है में आवश्यक रूप से न्युमेटिक रोलर के अतिरिक्त कम्प्यूटराईज्ड बैच मिक्स प्लांटका भी प्रावधान निविदा प्रपत्र में किया जाये।
2. जहां भी मार्ग का कार्य डब्ल्यू एम एम लेयर अथवा उसके नीचे की लेयर्स से किया जाना है तथा डामरीकृत कार्य में डीबीएम एवं बीसी का प्रावधान है वहां डामरीकरण कार्य सेंसर पेवर से ही किया जाये। इस संबंध में डब्ल्यू एम एम की द्वितीय परत भी सेंसर पेवर से ही की जाये। जिससे डामरीकृत लेयर्स की मोटाई एक जैसी प्रावधानानुसार सुनिश्चित की जाकर डिजाईन्ड प्रोफाईल प्राप्त की जा सके।
3. डामरीकरण के कार्यों हेतु जो भी लोड प्लांट से साईट पर जायेंगे उनके संबंध में टेकेदार कम्प्यूटराईज्ड स्लिप विभाग को प्रस्तुत करेंगे किंतु यह स्पष्ट किया जाता है कि कम्प्यूटराईज्ड स्लिप गुणवत्ता का आधार नहीं मानी जायेगी तथा किये गये कार्य की गुणवत्ता संबंधित टेस्ट रिजल्ट्स के आधार पर ही आंकी जायेगी। कम्प्यूटराईज्ड स्लिप की जानकारी विभाग द्वारा फ्रेंस चेकिंग हेतु उपयोग में ली जा सकती है।

(सी. पी. अग्रवाल)

सचिव

म.प. शासन, लोक निर्माण विभाग



पृ.क्रमांक एफ.- 58/ 24/15/19/यो 4342

भोपाल दिनांक 6-8-2015

प्रतिलिपि:-

1. निज सहायक, मानवीय मंत्री जी लोक निर्माण विभाग भोपाल।
2. समस्त मुख्य अभियंता, लोक निर्माण विभाग, मध्यप्रदेश। मध्य परियोजनापुर
3. समस्त अधीक्षण यंत्री, लोक निर्माण विभाग, मध्यप्रदेश।
4. समस्त कार्यपालन यंत्री लोक निर्माण विभाग, मध्यप्रदेश।

(सी. पी. अख्यपाल)

सचिव

म.प. शासन, लोक निर्माण विभाग



Annexure – B
(see Clause-3 of Section 1 – NIT)

|| AFFIDAVIT ||

(to be Contained in Envelope-A)
(On Non Judicial Stamp of Rs. 200)

I/we _____ who is/ are _____
(status in the firm/ company) and competent for submission of the
affidavit on behalf of M/S _____ (contractor) do solemnly affirm an oath and state
that:
I/we am/are fully satisfied for the correctness of the certificates/records submitted in support of the
following information in bid documents which are being submitted in response to notice inviting
e-tender No. _____ for _____ (name of work) dated _____
issued by the _____
(name of the department).

I/we are fully responsible for the correctness of following self certified information/
documents and certificates:

1. That the self certified information given in the bid document is fully true and authentic.
2. That:
 - a. Term deposit receipt deposited as earnest money, demand draft for cost of bid document and other relevant documents provided by the Bank are authentic.
 - b. Information regarding financial qualification and annual turn-over is correct.
 - c. Information regarding various Technical qualifications is correct.
3. No close relative of the undersigned and our firm/company is working in the department.

OR

Following close relatives are working in the department:

Name _____ Post _____ Present Posting _____

Signature with Seal of the Deponent (bidder)

I/ We, _____ above deponent do hereby certify that the facts mentioned in
above paras 1 to 4 are correct to the best of my knowledge and belief. in the event of any information is
found to incorrect / untrue or found violated then without prejudice to any other right of remedy including
the forfeiture of the bid security / performance security.

Verified Today _____ (dated) at _____ (place).

Signature with Seal of the Deponent (bidder)

Note: Affidavit duly notarized in original shall reach at least one Calendar day before opening of the bid.



कार्यालय प्रमुख अभियंता
लोक निर्माण विभाग मध्यप्रदेश

27-28, निर्माण भवन, प्रथम तल, अरेरा हिल्स, भोपाल (म. प्र.)
Website: www.mppwd.gov.in Email: pwdbhop@mp.nic.in
Tel. No. -0755-2551485 Fax No.- 0755-2556527

क्रमांक/लोनिवि/2015/संचार/ 1063
प्रति,

भोपाल दिनांक 02-05-2015

समस्त मुख्य अभियंता/
समस्त अधीक्षण यंत्री/
समस्त कार्यपालन यंत्री
लोक निर्माण विभाग, मध्यप्रदेश।

विषय:- कांक्रिट मार्ग (रीजिड पेवमेंट) निर्माण के कार्यों में गुणवत्ता सुनिश्चित करने के संबंध में निर्देश।

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कतिपय प्रकरणों में यह देखने में आया है कि विभाग में कांक्रिट पेवमेंट के जो कार्य कराये जा रहे हैं वे निर्धारित मानक स्तर के नहीं हैं। ऐसी स्थिति में कांक्रिट पेवमेंट में या तो गहरे क्रेक्स परिलक्षित होते हैं अथवा मार्ग की सतह अत्यंत खराब हो जाती है। इस प्रकार की परिस्थिति पीक्चूरी कार्य में प्रयुक्त की जा रही कांक्रिट की अल्प गुणवत्ता के कारण ही मुख्यतः होती है।

उपरोक्त परिस्थितियों को ध्यान में रखते हुये कांक्रिट पेवमेंट की गुणवत्ता सुनिश्चित करने के मान से निम्नानुसार निर्देश प्रसारित किये जाते हैं:-

- कांक्रिट मार्ग के निर्माण हेतु एमओआरटी एण्ड एच, आई आर सी एवं आई एस के संबंधित निर्देशों / मापदण्डों का पालन किया जाये।
- गुणवत्ता की दृष्टि से इन कार्यों के संबंध में निम्नानुसार मुख्य बिन्दुओं का पालन आवश्यक रूप से सुनिश्चित किया जाये -
 - ड्रायलीन कांक्रिट के कार्य पर प्रत्येक 1000 वर्गमीटर के कार्य हेतु काम्प्रेसिव स्ट्रेंथ की टेस्टिंग के लिये कम से कम 3 सेम्पल्स लिये जायें (संदर्भ आई एस 516 एवं एम ओ आर टी एण्ड एच क्लाज 903.5.1.1)।
 - पेवमेंट कांक्रिट के कार्य पर प्रत्येक 150 क्यूबिक मीटर कार्य के लिये कम से कम 3 बीम एवं 3 क्यूब स्पेसिमेन लिये जायें। 1 स्पेसिमेन में 6 क्यूब तथा 6 बीम होंगे जिनमें से तीन 7 दिवस के पश्चात तथा तीन 28 दिवस के पश्चात टेस्ट किये जायेंगे। यदि एक कार्य दिवस में 150 क्यूबिक मीटर से कम कार्य किया जाता है तो भी कम से कम उपरोक्तानुसार 3-3 स्पेसिमेन लिये जाने होंगे (संदर्भ आई एस 516 एवं एम ओ आर टी एण्ड एच क्लाज 903.5.2.1)।

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3. पेवमेंट कांक्रीट का कार्य किये जाने के पश्चात बीम एवं कांक्रीट क्यूर्स की 7 दिवस स्ट्रेंथ टेक पाये जाने पर टेकेदार को संबंधित कार्य का 50 प्रतिशत भुगतान किया जा सकेगा। कार्स्टिंग के 28 दिवस पश्चात पेवमेंट से कोर कटर के माध्यम से सेम्पल्स लिये जाकर तथा उनकी टेस्टिंग विभागीय एवं एनएबीएल प्रयोगशालाओं में पूर्व निर्देशों के अनुसार किये जाने तथा किया गया कार्य मापदण्ड के अनुसार पाये जाने पर ही शेष 50 प्रतिशत राशि का भुगतान किया जावे। यह स्पष्ट किया जाता है कि यदि कार्य 28 दिवस की टेस्टिंग में मानक अनुसार (मोटाई एवं कॉम्प्रेसिव स्ट्रेंथ के मान से) नहीं पाया जाता है तो संबंधित कार्य अमान्य करते हुये, इसके विरुद्ध पूर्व में किये गये 50 प्रतिशत भुगतान की रिकवरी तत्काल संबंधित बिल से की जाये।
4. यह स्पष्ट किया जाता है कि सामान्यतः कोर हेतु 1 कि.मी. लंबाई के कार्य में 3 कोर सेम्पल्स लिये जायें। 1 कि.मी. से कम लंबाई के कार्य में 2 सेम्पल भी लिये जा सकते हैं। सेम्पल ऐसे स्थानों से लिये जायें जहां विजुअल इंस्पेक्शन से कांक्रीट की गुणवत्ता संदेहस्पद है। जहां से भी सेम्पल लिये जायें उस होल को तत्काल एम40 कांक्रीट से भरवाया जाना भी सुनिश्चित किया जाये।
5. भविष्य में जिन कार्यों पर कांक्रीट पेवमेंट का पूर्ण अथवा आंशिक कार्य किया जाना है उनमें निविदा बुलाते समय इस परिपत्र को निविदा प्रारूप का भाग बनाया जाये।

(इंजी. अखिलेश अग्रवाल)

प्रमुख अभियंता
लोक निर्माण विभाग मध्यप्रदेश

पृ. क्रमांक/लोनवि/संचार/2015/ 1070
प्रतिलिपि:-

भोपाल, दिनांक 02-05-2015

1. विशेष सहायक, माननीय मंत्री जी, म.प्र. शासन लोक निर्माण विभाग भोपाल।
2. प्रमुख सचिव, म.प्र. शासन, लोक निर्माण विभाग मंत्रालय, भोपाल।
3. वरिष्ठ निज सहायक, प्रमुख अभियंता लोक निर्माण विभाग भोपाल।

(इंजी. अखिलेश अग्रवाल)

प्रमुख अभियंता
लोक निर्माण विभाग मध्यप्रदेश



420

कार्यालय प्रमुख अभियंता

लोक निर्माण विभाग मध्यप्रदेश

27-28, निर्माण भवन, प्रथम तल, अरेरा हिल्स, भोपाल (म. प्र.)

Website : www.mppwd.gov.in

Email : pwdbhop@mp.nic.in

Telephone No.-0755-2551485 Fax No.- 0755-2556527

क्र संचार/लोनिवि/सर्कुलर /2016/ 2629
प्रति,

भोपाल दिनांक 09-8-2016

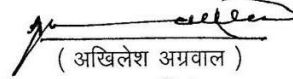
समस्त मुख्य अभियंता,
म.प्र. लोक निर्माण विभाग,
..... परिक्षेत्र

विषय:- मार्ग निर्माण कार्यों में फ्लाई ऐश उपयोग करने बाबत।

विभाग में फ्लाई ऐश से अर्थ वर्क के कार्य हेतु पूर्व जारी किये गये निर्देशों को अधिक्रमित करते हुये निम्नानुसार निर्देश जारी किये जाते हैं:-

1. सड़कों के इम्बेकमेंट का कार्य आई.आर.सी. स्पेशल पब्लिकेशन 58-2001 के अनुसार किया जाये।
2. ऐसे सड़क कार्य तथा आर.ओ.बी. के कार्य जिसमें इम्बेकमेंट की ऊँचाई 3 मीटर से अधिक हो में फ्लाई ऐश का उपयोग अनिवार्य रूप से किया जाये। यहां पर यह स्पष्ट किया जाता है जिसमें आर.ई.वाल का निर्माण किया जाना है उसमें फ्लाई ऐश का उपयोग न किया जाये।

यह निर्देश केवल उन्हीं प्रकरणों में प्रभावशील होंगे जिसमें निर्माण कार्य थर्मल स्टेशन से 300 किलोमीटर की दूरी की परिधि में हों। उपरोक्तानुसार निर्देशों का कड़ाई से पालन किया जाये तथा इसे अनुबंध का हिस्सा भी बनाया जाये।

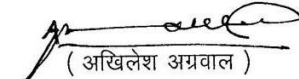

(अखिलेश अग्रवाल)

प्रमुख अभियंता
लोक निर्माण विभाग, मध्यप्रदेश

पृ. क्र. संचार/लोनिवि/सर्कुलर /2016/ 2630
प्रतिलिपि -

भोपाल दिनांक 09-8-2016

1. निज सहायक, माननीय मंत्रीजी लोक निर्माण विभाग ।
2. प्रमुख सचिव, म.प्र. शासन, लोक निर्माण विभाग, भोपाल ।
3. समस्त अधीक्षण यंत्री, म.प्र. लोक निर्माण विभाग
4. समस्त कार्यपालन यंत्री, म.प्र. लोक निर्माण विभाग
5. आई.टी.सेल, कार्यालय प्रमुख अभियंता, लोक निर्माण विभाग, भोपाल की ओर। परिपत्र मेल से समस्त संबंधित को प्रेषित किये जाने एवं विभाग की वेबसाइट पर अपलोड किये जाने हेतु अग्रेषित ।


(अखिलेश अग्रवाल)

प्रमुख अभियंता
लोक निर्माण विभाग, मध्यप्रदेश



कार्यालय प्रमुख अभियंता,

म.प्र. लोक निर्माण विभाग, 27-28, निर्माण भवन, प्रथम तल, अरेरा हिल्स, भोपाल
 Website : www.mppwd.gov.in Phone No. - 0755-2551485, Fax - 2556527 Email : pwdbhop@mp.nic.in

क्रमांक/लोनिवि/2016/सर्कुलर/संचार/3625 भोपाल, दिनांक 25/10/2016
 प्रति,

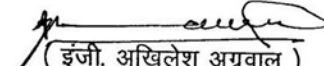
समस्त मुख्य अभियंता,
 समस्त अधीक्षण यंत्री,
 समस्त कार्यपालन यंत्री,
 लोक निर्माण विभाग, मध्यप्रदेश ।

विषय :- कांक्रीट मार्ग (रीजिड पेवमेंट) निर्माण के कार्यों में गुणवत्ता सुनिश्चित करने के संबंध में निर्देश।
 संदर्भ:- इस कार्यालय का परिपत्र क्रमांक लोनिवि/2015/संचार/1069 भोपाल दिनांक 2-5-2016

उपरोक्त संदर्भित परिपत्र के बिन्दु क्रमांक-3 में निम्नानुसार आंशिक संशोधन किया जाता है।

पेवमेंट कांक्रीट का कार्य किये जाने के पश्चात बीम एवं कांक्रीट की 7 दिवस की स्ट्रेंथ ठीक पाये जाने पर ठेकेदार को संबंधित कार्य का 50 प्रतिशत भुगतान किये जाने के प्रावधान के स्थान पर 75 प्रतिशत का भुगतान किया जाये। शेष 25 प्रतिशत भुगतान 28 दिवस के पश्चात कार्य मापदण्डानुसार पाये जाने पर किया जाये। शेष निर्देश पूर्वानुसार ही रहेंगे।

उपरोक्त निर्देशों का कड़ाई से पालन किया जाना सुनिश्चित किया जाये।


 (इंजी. अखिलेश अग्रवाल)
 प्रमुख अभियंता
 लोक निर्माण विभाग मध्यप्रदेश

पृ. क्रमांक/लोनिवि/2016/सर्कुलर/संचार/ भोपाल, दिनांक 23/10/2016
 प्रतिलिपि -

1. विशेष सहायक, माननीय मंत्री जी, म.प्र. शासन, लोक निर्माण विभाग भोपाल।
2. प्रमुख सचिव, म.प्र. शासन, लोक निर्माण विभाग, मंत्रालय, भोपाल ।
3. वरिष्ठ निज सहायक, प्रमुख अभियंता लोक निर्माण विभाग निर्माण भवन अरेरा हिल्स, भोपाल।

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 (इंजी. अखिलेश अग्रवाल)
 प्रमुख अभियंता
 लोक निर्माण विभाग मध्यप्रदेश



SECTION 3 (Conditions of Contract)
Part - II Special Conditions of Contract [SCC]
Additional Special Conditions of Contract

BIDDERS ARE REQUIRED TO OFFER THEIR BIDS
EXCLUSIVE OF APPLICABLE GST. THE GST SHALL BE PAID BY
THE GOVT. TO THE CONTRACTOR SEPARATELY.

letter MDR 07-04-17

Page 137



मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय

क्रमांक 4977/6871/2017/19/यो
प्रति,

भोपाल, दिनांक 23/09/2017

✓ प्रमुख अभियंता,
लोक निर्माण विभाग,
भोपाल।

2 प्रबंध संचालक,
म.प्र. रोड डेवलपमेंट कार्पो. लि.,
भोपाल।

3 समस्त मुख्य अभियंता (रा.रा. सहित),
लोक निर्माण विभाग,
म.प्र.

विषय: सड़क मार्गों में वर्तमान अनुबंधों के अंतर्गत परफारमेंस गारंटी को समाप्त किया जाना।
संदर्भ: प्रमुख अभियंता लोक निर्माण विभाग भोपाल का पत्र क्र. 401/सा/विविध/
103/2016/1080 दिनांक 17.11.2016

म.प्र. शासन लोक निर्माण विभाग के पत्र क्र. एफ-41/1/9/यो/0 दिनांक 31.10.2015 से सड़क मार्गों में वर्तमान अनुबंधों के अंतर्गत परफारमेंस गारंटी को समाप्त किये जाने के आदेश जारी किये गये थे, के सम्बन्ध में राज्य शासन एतद् द्वारा इस आदेश के तारतम्य में निम्न निर्देश जारी किये जाते हैं।
उन सड़कों पर जहाँ राज्य शासन अथवा सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार द्वारा पुनः किसी अन्य योजना में मार्ग का उन्नयन करने की स्वीकृति जारी की जाती है, वहाँ निम्न तालिकाओं के अनुसार राशि वसूल कर परफारमेंस गारंटी की शेष राशि ठेकेदार द्वारा विमुक्त की जाये।

तालिका क्रमांक-1

(3 वर्ष की पी.जी. हेतु)

पूर्ण किये गये वर्ष (वास्तविक पूर्णता की तिथि)		वसूली जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)	विमुक्त की जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)
प्रथम वर्ष तक	प्रथम तिमाही	60 प्रतिशत	40 प्रतिशत
	द्वितीय तिमाही	55 प्रतिशत	45 प्रतिशत
	तृतीय तिमाही	50 प्रतिशत	50 प्रतिशत
	चतुर्थ तिमाही	45 प्रतिशत	55 प्रतिशत
1 से 2 वर्ष तक	प्रथम तिमाही	40 प्रतिशत	60 प्रतिशत
	द्वितीय तिमाही	35 प्रतिशत	65 प्रतिशत
	तृतीय तिमाही	30 प्रतिशत	70 प्रतिशत
	चतुर्थ तिमाही	25 प्रतिशत	75 प्रतिशत
2 से 3 वर्ष तक	प्रथम तिमाही	20 प्रतिशत	80 प्रतिशत
	द्वितीय तिमाही	15 प्रतिशत	85 प्रतिशत
	तृतीय तिमाही	10 प्रतिशत	90 प्रतिशत
	चतुर्थ तिमाही	05 प्रतिशत	95 प्रतिशत
3 से 4 वर्ष तक		00 प्रतिशत	100 प्रतिशत

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प्रकरण क्र.-2 : वे सड़के जिनकी परफारमेंस गारंटी अवधि (4 वर्ष) हो।

जहाँ 4 वर्ष की परफारमेंस गारंटी हो वहाँ परफारमेंस गारंटी में से वसूली एवं विमुक्त की जाने वाली राशि तालिका क्रमांक-2 के अनुसार होगी।

तालिका क्रमांक-2

(4 वर्ष की पी.जी. हेतु)

पूर्ण किये गये वर्ष (वास्तविक पूर्णता की तिथि)	वसूली जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)	विमुक्त की जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)
प्रथम वर्ष तक	प्रथम तिमाही 60 प्रतिशत	40 प्रतिशत
	द्वितीय तिमाही 56.25 प्रतिशत	43.75 प्रतिशत
	तृतीय तिमाही 52.50 प्रतिशत	47.50 प्रतिशत
	चतुर्थ तिमाही 48.75 प्रतिशत	51.25 प्रतिशत
1 से 2 वर्ष (द्वितीय वर्ष)	प्रथम तिमाही 45.00 प्रतिशत	55.00 प्रतिशत
	द्वितीय तिमाही 41.25 प्रतिशत	58.75 प्रतिशत
	तृतीय तिमाही 37.50 प्रतिशत	62.5 प्रतिशत
	चतुर्थ तिमाही 33.75 प्रतिशत	66.25 प्रतिशत
शेष (तृतीय वर्ष)	प्रथम तिमाही 30 प्रतिशत	70 प्रतिशत
	द्वितीय तिमाही 26.25 प्रतिशत	73.75 प्रतिशत
	तृतीय तिमाही 22.50 प्रतिशत	77.50 प्रतिशत
	चतुर्थ तिमाही 18.75 प्रतिशत	81.25 प्रतिशत
शेष (तृतीय वर्ष)	प्रथम तिमाही 15.00 प्रतिशत	85.00 प्रतिशत
	द्वितीय तिमाही 11.25 प्रतिशत	88.75 प्रतिशत
	तृतीय तिमाही 7.50 प्रतिशत	92.50 प्रतिशत
	चतुर्थ तिमाही 3.75 प्रतिशत	96.25 प्रतिशत
4 से अधिक	0 प्रतिशत	100 प्रतिशत

तालिका क्रमांक-3

(5 वर्ष की पी.जी. हेतु)

पूर्ण किये गये वर्ष (वास्तविक पूर्णता की तिथि)	वसूली जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)	विमुक्त की जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)
प्रथम वर्ष तक	प्रथम तिमाही 60 प्रतिशत	40 प्रतिशत
	द्वितीय तिमाही 57.5 प्रतिशत	42.5 प्रतिशत
	तृतीय तिमाही 55.00 प्रतिशत	45.00 प्रतिशत
	चतुर्थ तिमाही 52.5 प्रतिशत	47.5 प्रतिशत
1 से 2 वर्ष (द्वितीय वर्ष)	प्रथम तिमाही 50.00 प्रतिशत	50.00 प्रतिशत
	द्वितीय तिमाही 47.50 प्रतिशत	52.05 प्रतिशत
	तृतीय तिमाही 45.00 प्रतिशत	54.00 प्रतिशत
	चतुर्थ तिमाही 42.50 प्रतिशत	56.00 प्रतिशत

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प्रकरण क्र.-2 : वे सड़के जिनकी परफारमेंस गारंटी अवधि (4 वर्ष) हो।

जहाँ 4 वर्ष की परफारमेंस गारंटी हो वहाँ परफारमेंस गारंटी में से वसूली एवं विमुक्त की जाने वाली राशि तालिका क्रमांक-2 के अनुसार होगी।

तालिका क्रमांक-2

(4 वर्ष की पी.जी. हेतु)

पूर्ण किये गये वर्ष (वास्तविक पूर्णता की तिथि)	वसूली जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)	विमुक्त की जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)
प्रथम वर्ष तक	प्रथम तिमाही 60 प्रतिशत	40 प्रतिशत
	द्वितीय तिमाही 56.25 प्रतिशत	43.75 प्रतिशत
	तृतीय तिमाही 52.50 प्रतिशत	47.50 प्रतिशत
	चतुर्थ तिमाही 48.75 प्रतिशत	51.25 प्रतिशत
1 से 2 वर्ष (द्वितीय वर्ष)	प्रथम तिमाही 45.00 प्रतिशत	55.00 प्रतिशत
	द्वितीय तिमाही 41.25 प्रतिशत	58.75 प्रतिशत
	तृतीय तिमाही 37.50 प्रतिशत	62.5 प्रतिशत
	चतुर्थ तिमाही 33.75 प्रतिशत	66.25 प्रतिशत
शेष (तृतीय वर्ष)	प्रथम तिमाही 30 प्रतिशत	70 प्रतिशत
	द्वितीय तिमाही 26.25 प्रतिशत	73.75 प्रतिशत
	तृतीय तिमाही 22.50 प्रतिशत	77.50 प्रतिशत
	चतुर्थ तिमाही 18.75 प्रतिशत	81.25 प्रतिशत
शेष (तृतीय वर्ष)	प्रथम तिमाही 15.00 प्रतिशत	85.00 प्रतिशत
	द्वितीय तिमाही 11.25 प्रतिशत	88.75 प्रतिशत
	तृतीय तिमाही 7.50 प्रतिशत	92.50 प्रतिशत
	चतुर्थ तिमाही 3.75 प्रतिशत	96.25 प्रतिशत
4 से अधिक	0 प्रतिशत	100 प्रतिशत

तालिका क्रमांक-3

(5 वर्ष की पी.जी. हेतु)

पूर्ण किये गये वर्ष (वास्तविक पूर्णता की तिथि)	वसूली जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)	विमुक्त की जाने वाली राशि (कुल परफारमेंस गारंटी राशि का प्रतिशत)
प्रथम वर्ष तक	प्रथम तिमाही 60 प्रतिशत	40 प्रतिशत
	द्वितीय तिमाही 57.5 प्रतिशत	42.5 प्रतिशत
	तृतीय तिमाही 55.00 प्रतिशत	45.00 प्रतिशत
	चतुर्थ तिमाही 52.5 प्रतिशत	47.5 प्रतिशत
1 से 2 वर्ष (द्वितीय वर्ष)	प्रथम तिमाही 50.00 प्रतिशत	50.00 प्रतिशत
	द्वितीय तिमाही 47.50 प्रतिशत	52.05 प्रतिशत
	तृतीय तिमाही 45.00 प्रतिशत	54.00 प्रतिशत
	चतुर्थ तिमाही 42.50 प्रतिशत	56.00 प्रतिशत

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2 से 3 वर्ष (तृतीय वर्ष)	प्रथम तिमाही	40.00 प्रतिशत	60.00 प्रतिशत
	द्वितीय तिमाही	37.5 प्रतिशत	62.5 प्रतिशत
	तृतीय तिमाही	35.00 प्रतिशत	65.00 प्रतिशत
	चतुर्थ तिमाही	32.5 प्रतिशत	67.5 प्रतिशत
3 से 4 वर्ष (चतुर्थ वर्ष)	प्रथम तिमाही	30.00 प्रतिशत	70.00 प्रतिशत
	द्वितीय तिमाही	27.5 प्रतिशत	72.5 प्रतिशत
	तृतीय तिमाही	25.00 प्रतिशत	75.00 प्रतिशत
	चतुर्थ तिमाही	22.5 प्रतिशत	77.5 प्रतिशत
4 से 5 वर्ष (पंचम वर्ष)	प्रथम तिमाही	20.00 प्रतिशत	80.00 प्रतिशत
	द्वितीय तिमाही	15.00 प्रतिशत	85.00 प्रतिशत
	तृतीय तिमाही	10.00 प्रतिशत	90.00 प्रतिशत
	चतुर्थ तिमाही	05.00 प्रतिशत	95.00 प्रतिशत
5 वर्ष से अधिक	-	0 प्रतिशत	100 प्रतिशत

इस संबंध में कार्यवाही करते समय निम्न बिन्दुओं का विशेष ध्यान रखा जावे :-

- 1- उक्त निर्देश प्रदेश के अधीन सभी राष्ट्रीय राजमार्गों, राज्य राजमार्गों, मुख्य जिला मार्गों, अन्य जिला मार्गों एवं ग्रामीण मार्गों पर लागू होंगे।
- 2- उपरोक्त निर्देशों को भविष्य में बुलाई जाने वाली निविदाओं में विशेष शर्त के रूप में सम्मिलित किया जाये।
- 3- मण्डी निधि तथा सी.आर.एफ. योजना में निर्मित सड़कों पर यह कार्यवाही केवल अति-आवश्यक स्थिति निर्मित होने पर ही की जाये।
- 4- यह पुनः स्पष्ट किया जाता है कि निर्धारित अवधि से पूर्व परफारमेंस गारन्टी आंशिक रूप से विमुक्त करने की कार्यवाही उन्हीं मार्गों के लिए की जाये, जिन पर राज्य शासन द्वारा अथवा सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार द्वारा किसी अन्य योजना में मार्ग के उन्नयन/पुनर्निर्माण के लिए स्वीकृति जारी की गई हो।

सहपत्र:- शून्य

म0प्र0 के राज्यपाल के नाम से
तथा आदेशानुसार

(चन्द्रप्रकाश अग्रवाल)
सचिव

म0प्र0 शासन, लोक निर्माण विभाग

भोपाल, दिनांक 23/09/2017

पू0क्रमांक 4578/6871/2017/19/यो
प्रतिलिपि:-

- 1- समस्त अधीक्षण यंत्री, लोक निर्माण विभाग, म.प्र.।
- 2- समस्त कार्यपालन यंत्री, लोक निर्माण विभाग, म.प्र. (राष्ट्रीय राजमार्ग संभाग सहित)
- 3- निज सचिव, माननीय मंत्री जी लोक निर्माण विभाग, भोपाल।

की ओर सूचनार्थ (केवल स.क्र. 3 हेतु) एवं आवश्यक कार्यवाही हेतु अग्रेषित।

सहपत्र:- शून्य

सचिव

म0प्र0 शासन, लोक निर्माण विभाग

21-Sep-2017/PWD/2018/Order 69



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मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय

P

क्रमांक एफ-58/5/2012/19/यो/138
प्रति,

भोपाल, दिनांक 08/01/2018

प्रमुख अभियंता,
लोक निर्माण विभाग,
निर्माण भवन, भोपाल।

2 परियोजना संचालक,
लोक निर्माण विभाग,
परियोजना क्रियान्वयन ईकाई,
भोपाल।

विषय: लोक निर्माण विभाग के कार्यों की गुणवत्ता सुनिश्चित करने के सम्बन्ध में।

- संदर्भ: 1. म.प्र. शासन, लो.नि.वि. के ज्ञाप क्रमांक एफ-58/5/2012/19/यो/5718 दिनांक 16.09.2013
2. म.प्र. शासन, लो.नि.वि. के ज्ञाप क्रमांक एफ-58/5/2012/19/यो/5718 दिनांक 29.01.2016
3. म.प्र. शासन, लो.नि.वि. के ज्ञाप क्रमांक एफ-58/5/2012/19/यो/3567 दिनांक 27.06.2016

लोक निर्माण विभाग के कार्यों की गुणवत्ता सुनिश्चित करने के सम्बन्ध में शासन के समसंख्यक ज्ञाप दिनांक 27.06.2016 में निम्नानुसार संशोधन किया जाता है :-

लोक निर्माण विभाग भवन/पथ एवं पी.आई.यू. के अधीनस्थ चल रहे सभी मूल निर्माण कार्यों एवं मजबूतीकरण/नवीनीकरण कार्यों में प्रयुक्त होने वाली सामग्री एवं सम्पादित किये गये कार्यों का परीक्षण केवल लोक निर्माण विभाग की विभागीय प्रयोगशालाओं से ही कराये जाये। अधीक्षण यंत्री या उनसे वरिष्ठ अधिकारी ISO/IEC 17011 के अनुसार कार्य करने वाली संस्था यथा NABL या अन्य कोई ऐक्रीडेटिंग संस्था जो कि प्रयोगशालाओं को ISO/IEC 17025 के अनुसार ऐक्रीडिट करती है, से टेस्ट कराने हेतु अनुमति प्रदान कर सकते हैं।

उपरोक्त निर्देश तत्काल प्रभाव से लागू किये जाते हैं।

CE (AP)
CE (P)
11/01/18

25/01/18
सचिव

क्रमांक एफ-58/5/2012/19/यो
प्रतिलिपि :-

1. समस्त मुख्य अभियंता, लोक निर्माण विभाग, ... परिक्षेत्र
2. समस्त अतिरिक्त परियोजना संचालक, लो.नि.वि., पी.आई.यू.
3. समस्त अधीक्षण यंत्री, लोक निर्माण विभाग, ... मण्डल
4. समस्त कार्यपालन यंत्री, लोक निर्माण विभाग, ... संभाग
5. समस्त संगीय परियोजना यंत्री, लोक निर्माण विभाग, पी.आई.यू.

8.1.2018
(चन्द्रप्रकाश अग्रवाल)
सचिव

म0प्र0 शासन, लोक निर्माण विभाग
भोपाल, दिनांक

259630
12/01/18

अन

CE अग्रवाल
12/01/18

सचिव

म0प्र0 शासन, लोक निर्माण विभाग

08 Jan 2018 09:00:00



कार्यालय प्रमुख अभियंता,
लोक निर्माण विभाग, निर्माण भवन प्लॉट नं. 27-28 अरेरा हिल्स, भोपाल
web site : www.mp.gov.in/pwdmp e-mpwdbhop@mp.nic.in
Phone : 0755-2551372 Fax : 2556527

क्रमांक 05/प्र.अ./गुणवत्ता/2020/191

भोपाल दिनांक 14/10/2020

प्रति,

समस्त मुख्य अभियंता,
लोक निर्माण विभाग,
.....

विषय:-लोक निर्माण विभाग में कार्यों की गुणवत्ता सुनिश्चित करने हेतु निर्माण सामग्री का परीक्षण लोक निर्माण विभाग की प्रयोगशाला अथवा आई.एस.ओ./आई.ई.सी. 17025 के तहत मान्यता प्राप्त प्रयोगशाला के माध्यम से कराने बाबत।

संदर्भ:-म.प्र.शासन, लोक निर्माण विभाग, मंत्रालय भोपाल का परिपत्र क्र. एफ-58/5/2012/19/यो /2564 भोपाल दिनांक 06.09.2019 (छायाप्रति संलग्न)।

कृपया म.प्र.शासन, लो.नि.वि., मंत्रालय भोपाल के संदर्भित परिपत्र दिनांक 06.09.2019 का अवलोकन करने का कष्ट करें, जिसके द्वारा लोक निर्माण विभाग के अंतर्गत चल रहे सभी मूल निर्माण कार्य एवं रुपये 50.00 लाख से अधिक के कार्यों में प्रयुक्त होने वाली सामग्री एवं संपादित कार्यों के परीक्षण के सम्बंध में निर्देश जारी किये गये हैं (छायाप्रति संलग्न)।

तदनुसार शासन निर्देशों के परिपेक्ष्य में इनका कड़ाई से पालन करने एवं सभी निविदाओं में उक्त निर्देशों को विशेष शर्तों के रूप में जोड़ने हेतु समुचित कार्यवाही की जाना सुनिश्चित करें।

सहपत्र:-उपरोक्तानुसार।

(सी.पी. अग्रवाल)
प्रमुख अभियंता

लोक निर्माण विभाग, भोपाल
भोपाल दिनांक 14/10/2020

पृ.क्रमांक 05/प्र.अ./गुणवत्ता/2020/192
प्रतिलिपि

1. समस्त अधीक्षण यंत्री, लोक निर्माण विभाग, ... की ओर पालनार्थ।
2. समस्त कार्यपालन यंत्री, लोक निर्माण विभाग, ... की ओर पालनार्थ।

सहपत्र:-उपरोक्तानुसार।

कार्यालय कार्यपालन यंत्री
लो. नि. वि. संधारण संख्या क्र. 2020
3690 भोपाल
क्र. 10 दि. 10/10/20
संबंधित
कार्यपालन यंत्री सभागीय लेखाधिकारी

प्रमुख अभियंता
लोक निर्माण विभाग, भोपाल



बिन्दु क्र-11 (33)

मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय

क्रमांक एफ-58/5/2012/19/यो 2574 भोपाल दिनांक 06/09/2019
प्रति,

- | | |
|--|---|
| 1. प्रमुख अभियंता
लोक निर्माण विभाग
भोपाल। | 2. परियोजना संचालक
लोक निर्माण विभाग
पी0आई0यू0 भोपाल। |
|--|---|

विषय:- लोक निर्माण विभाग में कार्यों की गुणवत्ता सुनिश्चित करने हेतु निर्माण सामग्री का परीक्षण लो0नि0वि0 की प्रयोगशाला अथवा आई0एस0ओ0/आई0ई0सी0 17025 के तहत मान्यता प्राप्त प्रयोगशाला के माध्यम से कराने बाबत।

संदर्भ:- सरकार का वचन पत्र बिन्दु क्रमांक 15.1 के पालन के संदर्भ में।

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लोक निर्माण विभाग में कार्यों की गुणवत्ता सुनिश्चित करने के सम्बंध में सरकार के वचन पत्र बिन्दु क्रमांक-15.1 के परिप्रेक्ष्य में लोक निर्माण विभाग में निर्माण कार्यों की गुणवत्ता सुनिश्चित करने के सम्बंध में शासन द्वारा पूर्व में जारी किये गये निर्देश दिनांक 03.09.2012, 16.09.2013, 29.01.2016, 27.06.2016 एवं 8.01.2018 को तत्काल प्रभाव से निरस्त करते हुए निम्न दिशा निर्देश जारी किये जाते हैं:-

1. लोक निर्माण विभाग भवन/पथ, सेतु एवं परियोजना क्रियान्वयन इकाई के अधीन चल रहे सभी मूल निर्माण कार्य एवं रुपये 50 लाख से अधिक के सड़क मजबूतीकरण/नवीनीकरण कार्यों में प्रयुक्त होने वाली सामग्री एवं सम्पादित कार्यों का परीक्षण ठेकेदार द्वारा सम्बंधित स्पेसिफिकेशन/आई0आर0सी0 कोड/बी0आई0एस0 कोड में प्रावधानित फिक्सेसी में कराना सुनिश्चित किया जावे। उक्त परीक्षण ठेकेदार द्वारा कार्य स्थल पर स्थापित प्रयोगशाला, लोक निर्माण विभाग की केन्द्रीय/क्षेत्रीय प्रयोगशाला में विभागीय अधिकारी, सुपरविजन कन्सलटेन्ट (यदि कोई नियुक्त हो) एवं ठेकेदार के प्रतिनिधि की उपस्थिति में कराने के साथ ही, परीक्षण हेतु मान्यता प्राप्त अशासकीय संस्थाओं से भी कराये जा सकेंगे।
2. सम्बंधित कार्यपालन यंत्री/संभागीय परियोजना यंत्री प्रत्येक उक्त सरल क्रमांक-1 के निर्धारित परीक्षणों में से कम से कम 10 प्रतिशत परीक्षण लोक निर्माण विभाग की सम्बंधित केन्द्रीय अथवा क्षेत्रीय प्रयोगशाला के माध्यम से कराना सुनिश्चित करेंगे।
3. निर्धारित फिक्सेसी अनुसार सम्पादित होने वाले प्रत्येक उक्त सरल क्रमांक-1 के निर्धारित परीक्षणों में से कम से कम 10 प्रतिशत परीक्षण आई0एस0ओ0/आई0ई0सी0 17025 के तहत मान्यता प्राप्त प्रयोगशालाओं से कराया जावे।
4. विभागीय अथवा उपरोक्तानुसार अन्य प्रयोगशालाओं में परीक्षण पर आने वाले व्यय का अग्रिम भुगतान सम्बंधित ठेकेदार द्वारा किया जावेगा। ठेकेदार द्वारा भुगतान न करने की स्थिति में सम्बंधित विभागीय अधिकारी द्वारा प्रयोगशाला को भुगतान कर ठेकेदार के देयकों से भुगतान की राशि समायोजित की जावेगी।

PATIL/SACIV-P.C.B.-2019 LATTER-22



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- 5 विभागीय अथवा उपरोक्तानुसार अन्य प्रयोगशालाओं में सामग्रियों के नमूने विभागीय अधिकारी (सहायक यंत्री/उपयंत्री), कन्सलटेन्ट के क्वालिटी हेतु जिम्मेदार प्रतिनिधि (आर०ई०/मटेरियल इंजीनियर) व ठेकेदार के प्रतिनिधि की उपस्थिति में लिये जाकर व सील करके ही भेजे जावेंगे। उपरोक्तानुसार अन्य प्रयोगशालाओं में संयुक्त परीक्षण विभागीय अधिकारी, कन्सलटेन्ट (यदि कोई हो) व ठेकेदार के प्रतिनिधियों की उपस्थिति में किये जाकर परिणाम हस्ताक्षरित भी किये जावे।
- 6 कार्यपालन यंत्री/कन्सलटेन्ट यह सुनिश्चित करें कि सम्बंधित कार्य में स्पमग्री एवं कार्य का परीक्षण निर्धारित फ्रिक्वेंसी अनुसार किया गया है, तथा परीक्षण की प्रमाणित सारांश पत्रक प्रत्येक देयक के साथ अनिवार्यतः संलग्न की जावे।
- 7 मध्यप्रदेश शासन, सामान्य प्रशासन विभाग के पत्र क्रमांक एफ-10-3/2016/1-16/1-10 दिनांक 20.02.2018 के अनुसार मुख्य तकनीकी परीक्षक (सतर्कता) संगठन द्वारा किये जाने वाले निर्माण कार्यों के स्थल निरीक्षण एवं जांच के दौरान एकत्रित सामग्री का परीक्षण एन०ए०बी०एल० अथवा आई०एस०ओ०/आई०ई०सी० 17025 के तहत मान्यता प्राप्त प्रयोगशालाओं से ही कराया जावे।

उपरोक्त निर्देश तत्काल प्रभाव से लागू किये जाते हैं। भविष्य में आमंत्रित सभी निविदाओं में उक्त निर्देशों को विशेष शर्तों के रूप में जोड़ा जावे।

(पी०सी० बारस्कर)

सचिव

मध्यप्रदेश शासन

प्लोक निर्माण विभाग

भोपाल दिनांक 06/09/2019

पु.क्रमांक एफ-58/5/2012/19/यो 2365
प्रतिलिपि:-

- 1 प्रमुख अभियंता मध्यप्रदेश रोड डेवलपमेंट कार्पोरेशन लिमिटेड अरेरा हिल्स भोपाल।
- 2 समस्त मुख्य अभियंता लोक निर्माण विभाग परिक्षेत्र..... मध्यप्रदेश।
- 3 समस्त अतिरिक्त परियोजना संचालक लो०नि०वि० पी०आई०यू०.....।
- 4 समस्त अधीक्षण यंत्री लोक निर्माण विभाग..... मण्डल.....।
- 5 समस्त कार्यपालन यंत्री लोक निर्माण विभाग..... संभाग.....।
- 6 समस्त संभागीय परियोजना यंत्री, लोक निर्माण विभाग पी०आई०यू०.....।

सचिव

मध्यप्रदेश शासन

लोक निर्माण विभाग

मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय

क्रमांक-एफ-53/02/2011/यो/19/524

भोपाल, दिनांक 14/02/2025

//आदेश//

मध्यप्रदेश शासन, लोक निर्माण विभाग द्वारा जारी आदेश क्रमांक-एफ-53/02/2011/यो/19/2022 भोपाल दिनांक 10 अगस्त 2022 में अतिरिक्त परफॉरमेंस गारंटी की राशि की गणना के लिए उल्लेखित गणितीय विधा के बिन्दु क्रमांक 3(अ) एवं 3(ब) में निम्नानुसार संशोधन उपरान्त प्रतिस्थापित किया जाता है:-

- 3.1 निविदा में 10 प्रतिशत कम दर प्राप्त होने पर कोई अतिरिक्त परफॉरमेंस गारंटी की राशि नहीं लिया जाना है।
- 3.2 निविदा में 10 से 20 प्रतिशत तक कम दर आने पर निविदा दर 10 प्रतिशत से बढ़कर जितने प्रतिशत कम होगी PAC राशि का उतना प्रतिशत अतिरिक्त परफॉरमेंस गारंटी की राशि निम्नानुसार होगी:-

उदाहरण- यदि निविदा की अनुमानित लागत (PAC) Rs. 100.00 लाख है, तथा सफलतम निविदाकार की दर 14 प्रतिशत Below SOR हो तो अतिरिक्त परफॉरमेंस गारंटी की गणना निम्नानुसार होगी:-

एफ.डी.आर. के रूप में प्रस्तुत की जाने वाली अतिरिक्त परफॉरमेंस गारंटी की राशि:-

Probable Amount of Contract (PAC) X Rates Below SOR Beyond 10% = 100 (14%-10%) = Rs. 4.00 लाख

- 3.3 निविदा में 20 प्रतिशत से अधिक कम दर (RATES BELOW SOR BEYOND 20%) आने पर निविदा दर आने पर गणना निम्नानुसार होगी:-

उदाहरण- यदि निविदा की अनुमानित लागत (PAC) Rs. 100.00 लाख है तथा, सफलतम निविदाकार की दर 24 प्रतिशत Below SOR हो तो अतिरिक्त परफॉरमेंस गारंटी की गणना निम्नानुसार होगी:-

एफ.डी.आर. के रूप में प्रस्तुत की जाने वाली अतिरिक्त परफॉरमेंस गारंटी की राशि:- A+B

A. Probable Amount of Contract X 1 x Rates Below SOR Beyond 10% upto 20% = 100x1x (10%) = Rs. 10.00 लाख

B. Probable Amount of Contract X Rates Below SOR Beyond 20% = 100x2x (4%) = Rs. 8.00 लाख

अर्थात् कुल अतिरिक्त परफॉरमेंस गारंटी की राशि- (A+B)=
Rs. 18.00 लाख

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- 3.4 ऐसे अनुबंध में जिनमें 10 प्रतिशत कम दर की सीमा से अधिक कम दरों पर अनुबंध निष्पादित किये जाने उन अनुबंधित कार्यों के पूर्ण होने के उपरांत उनके अंतिम देयको का भुगतान संबंधित अधीक्षण यंत्री के निरीक्षण उपरांत संतोषजनक पाये जाने पर तदनुसार अधीक्षण यंत्री द्वारा अनुमति प्रदान किये जाने के पश्चात ही किए जावे।
- 3.5 उपरोक्त के अतिरिक्त कार्य स्थल पर स्थापित बैच मिक्स प्लांट, रेडीमिक्स कांकीट (RMC) प्लांट का अधीक्षण यंत्री के द्वारा निरीक्षण किये जाने के उपरांत ही कार्य प्रारंभ किया जावे।
- 3.6 राशि रुपये 2.00 से 10.00 करोड़ तक के कार्यों के लिये स्थल पर स्थापित लेबोरेट्री का निरीक्षण अधीक्षण यंत्री के द्वारा तथा राशि रुपये 10.00 करोड़ से अधिक के कार्यों के लिये स्थापित लेबोरेट्री का निरीक्षण मुख्य अभियंता द्वारा किये जाने के उपरांत ही कार्य प्रारंभ किया जावे।
- अतिरिक्त परफॉरमेंस गारंटी की एफ.डी.आर. कार्यपूर्णता के उपरांत ही विमुक्त की जा सकेगी।

(ए. आर. सिंह)
उप सचिव

म0प्र0 शासन, लोक निर्माण विभाग

भोपाल, दिनांक 14/02/2025

पृ. क्रमांक-एफ-53/02/2011/यो/19/525
प्रतिलिपि:-

1. प्रमुख अभियंता, (सड़क/पुल) लोक निर्माण विभाग भोपाल।
2. प्रबंध संचालक, म.प्र. सड़क विकास निगम भोपाल।
3. प्रमुख अभियंता (भवन) लोक निर्माण विभाग भोपाल।
4. प्रबंध संचालक, म.प्र. भवन विकास निगम भोपाल।
5. विशेष सहायक, माननीय मंत्री जी लोक निर्माण विभाग भोपाल।
6. समस्त मुख्य अभियंता, (सड़क/पुल) लोक निर्माण विभाग।
7. समस्त मुख्य अभियंता, (भवन) लोक निर्माण विभाग।
8. समस्त अधीक्षण यंत्री, लोक निर्माण विभाग मध्य प्रदेश।
9. समस्त कार्यपालन यंत्री लोक निर्माण विभाग मध्य प्रदेश।
10. कार्यपालन यंत्री, (भवन) लोक निर्माण विभाग मध्य प्रदेश।

की ओर सूचनार्थ एवं आवश्यक कार्यवाही हेतु प्रेषित।

(ए. आर. सिंह)
उप सचिव

म0प्र0 शासन, लोक निर्माण विभाग

मध्यप्रदेश शासन
लोक निर्माण विभाग
मंत्रालय

क्रमांक - 2582479 / 2025 / 19 / यो - 8/3

भोपाल दिनांक 25.03.2025

प्रति,

प्रमुख अभियंता
लोक निर्माण विभाग
भोपाल

विषय:- लोक निर्माण विभाग के अंतर्गत सड़क एवं पुल कार्यों के निविदाओं में प्रतिस्पर्धा बढ़ाने तथा गुणवत्ता सुनिश्चित करने के लिये प्री-क्वालीफिकेशन के संबंध में।

संदर्भ:- मध्यप्रदेश शासन लोक निर्माण विभाग द्वारा जारी आदेश क्र.- एफ-58/7/2015/19/यो भोपाल दिनांक 17.04.2015

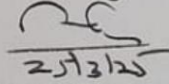
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उपरोक्त विषयांतर्गत निर्माण कार्यों की निविदाओं में प्री-क्वालीफिकेशन के संबंध में मध्यप्रदेश शासन लोक निर्माण विभाग द्वारा पूर्व में जारी आदेश दिनांक 17.04.2015 के बिन्दु क्रमांक-1(ii) में राज्य शासन एतद द्वारा निम्नानुसार संशोधन जारी करता है:-

“भवन निर्माण कार्य के अतिरिक्त अन्य निर्माण कार्यों में रु. 5 करोड से अधिक की निविदा, के स्थान पर रु. 2.00 करोड से अधिक की निविदाओं में निविदा पूर्व अर्हता (Pre-Qualification) की शर्त लगाई जावे।”

उपरोक्तानुसार जारी संशोधन आदेश तत्काल प्रभाव से लागू होंगे।

म0प्र0 के राज्यपाल के नाम से
तथा आदेशानुसार



(ए.आर.सिंह)

उप सचिव

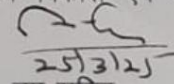
मध्यप्रदेश शासन
लोक निर्माण विभाग

पृ0क्रमांक 2582479 / 2025 / 19 / यो 8/4

भोपाल दिनांक 25.03.2025

प्रतिलिपि:-

1. प्रमुख सचिव, मध्यप्रदेश शासन, जल संसाधन/लोक स्वास्थ्य यांत्रिकी/नगरीय विकास एवं आवास विभाग मंत्रालय भोपाल।
2. प्रमुख अभियंता, जल संसाधन/लोक स्वास्थ्य यांत्रिकी/नगरीय विकास एवं आवास विभाग भोपाल की ओर सूचनार्थ एवं पालनार्थ।



उप सचिव

मध्यप्रदेश शासन

Ujjain Municipal Corporation
Construction of Proposed Water Supply & Sewer Network Services of Block 1A + 1B (Package 4) at Ujjain
BOQ-Abstract

Sr.No.	Reference	Description of Item	Unit	Total Qty.	Rate	Amount
1. Water Supply Network						
1	(IWSTW-revised 2024, CH-4 Item no. 4.1)	Providing, laying, jointing & testing of socket & spigot centrifugally cast (Spun) Ductile Iron pressure pipes with inside cement mortar lining (class K-7) with suitable Rubber Gasket (Push on) joints as per IS:5382/85 including testing of joint.				
		150 mm dia.	Rmt.	57,020.00	1,686.00	9,61,35,720.00
		200 mm dia.	Rmt.	42,050.00	2,236.00	9,40,23,800.00
		250 mm dia.	Rmt.	5,610.00	2,906.00	1,63,02,660.00
		300 mm dia.	Rmt.	7,980.00	3,571.00	2,84,96,580.00
		350 mm dia.	Rmt.	5,060.00	4,465.00	2,25,92,900.00
		400 mm dia.	Rmt.	3,160.00	5,328.00	1,68,36,480.00
		500 mm dia.	Rmt.	5,540.00	7,392.00	4,09,51,680.00
		600 mm dia.	Rmt.	1,900.00	9,765.00	1,85,53,500.00
2	(10% of Item no. 1)	Manufacture, Supply & Delivery of Ductile Iron Flange socket spigot bends, tees, reducers etc.				3,33,89,332.00
3	(IWSTW-2021, CH-14 Item no. 14.8)	Providing & fixing of following Ductile iron double flanged sluice valves glandless, resilient (soft seated) non-rising spindle with body bonnet of ductile iron of grade GGG 40/SGI 400/12 or equivalent grade or of higher tensile strength grade, as per IS: 3896 part-II-1986 and subsequent revision, wedge fully rubber lined with EPDM food grade quality and seals of NBR. The valve should be with replaceable nut and replaceable sliding shoes, valve stems shall be of single piece thread rolled. Sluice valve shall be compatible for buried applications without valve chambers. The valve should be vacuum tight and 100% leakproof with face to face dimensions as BS: 5163-89/ IS: 14846/2000/DIN 3204 F4 and flange connections as per IS: 1538. Valve should be with electrostatic powder coating both inside and outside (thickness 250 micron)with pocketless straight thro body passage including jointing and testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete.				
		Sluice Valve PN-1				
		150 mm dia. - PN 1 class	No.	73.00	14,379.00	10,49,667.00
		200 mm dia. - PN 1 class	No.	48.00	21,374.00	10,25,952.00
		250 mm dia. - PN 1 class	No.	7.00	35,229.00	2,46,603.00
		300 mm dia. - PN 1 class	No.	16.00	45,616.00	7,29,856.00
		350 mm dia. - PN 1 class	No.	10.00	89,479.00	8,94,790.00
		400 mm dia. - PN 1 class	No.	6.00	93,406.00	5,60,436.00
4	(IWSTW-2021, CH-14 Item no. 14.28)	Providing & fixing following ductile iron manually operated long body butterfly valves including jointing & testing with cost of jointing material such as bolts,nuts and rubber insertion all complete.				
		500 mm dia. - B/F Valve	No.	11.00	63,300.00	6,96,300.00
		600 mm dia. - B/F Valve	No.	1.00	1,02,200.00	1,02,200.00
5	(IWSTW-2021, CH-14 Item no. 14.43)	Providing & fixing following ductile iron single chamber triple function temper proof air valves, (small orifice with screwed end as per IS:14845-2000 including jointing & testing with cost of jointing material and rubber insertion all complete as per IS:13095-1991.				
		With isolating Sluice Valve PN 1.0				
		80 mm dia. - PN 1 class	No.	3.00	13,436.00	40,308.00
		100 mm dia. - PN 1 class	No.	3.00	17,127.00	51,381.00
		150 mm dia. - PN 1 class	No.	3.00	23,962.00	71,886.00
6	(IWSTW-2021, CH-18 Item no. 18.2.1)	Earth work in excavation for foundation, trenches for pipes / cables or drains etc. by mechanical means / manual means (exceeding 30cm in depth.) including ramming of bottom, dressing of sides, disposal of excavated earth including of all lift and lead upto 50m. Disposed earth to be levelled and neatly dressed.				
		In all sorts of soil, soft murrum, hard				
		murrum, soft rock, etc.				
		0 to 1.5 mt. Depth	Cu.m.	1,45,203.00	151.00	2,19,25,653.00
7	(IWSTW-2021, CH-18 Item no. 18.2.5)	Extra for every additional lift of 1.5m or part thereof over item 18.2 (Note: Only for depth of trench exceeding 1.5m for laying of sewer line & water line and manhole/ chambers including all site clearances, adequate barricades, construction signs, red lanterns and guards as required, dewatering, scaffolding, timbering, machinery, tools implements and generally of all means used for the fulfillment of these items.)				
		1.5 mt. to 3.0 mt. Depth	Cu.m.	1,881.00	181.20	3,40,837.20
8	(IWSTW-2021, CH-18 Item no. 18.3.3)	Filling with moorum for pipe bedding or over the pipe including supply of moorum/sand	Cu.m.	15,893.00	720.00	1,14,42,960.00
9	(IWSTW-2021, CH-18 Item no. 18.2.8)	Refilling- Filling by available excavated earth (excluding rock) in trenches, plinth,sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cu.m.	1,23,356.00	89.00	1,09,78,684.00
10	(IWSTW-2021, CH-18 Item no. 18.14.3)	Cement concrete grade M-20 (NominalMix) with 20mm maximum size of stone aggregate.				
		For Pipe Encasing	Cu.m.	1,679.00	5,178.00	86,93,862.00
11	(IWSTW-2021, CH-18 Item no. 18.14.5)	Providing and laying in position M-20 (NominalMix) with20 mmmaximumsize of stone aggregate of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement	Cu.m.	150.00	5,435.00	8,15,250.00
12	(IWSTW-2021, CH-18 Item no. 18.22)	Extra for laying reinforced cement concrete in or under water and/or liquidmud including cost of pumping or bailingout water and removing slush etc., complete.	Cu.m.	900.00	270.00	2,43,000.00
13	(IWSTW-2021, CH-18 Item no. 18.23.4)	Reinforcement for R.C.C. work including straightening, cutting, bending,placing in position and binding upto floor level including cost of binding wire,wastage and over laps upto12mm horizontal/ inclined position of reinforcement bars in slab and beams,plinth, chajjas, lintels, upto 4.5m vertical length of reinforcement in wall columns (over laps shall be provided as per requirement of IS: 13920; IS 456 & SP : 34) etc. complete. Thermo-Mechanically Treated bars. (Fe 500 D or more)	Kg	5,250.00	58.00	3,04,500.00
14		Valve Chamber				
		Construction of Valve chambers in brick masonry, locally available in C. M. 1:6. Foundation concrete 150 mm thick in C. C. 1:3:6 of trap metal size 25 mm to 40 mm thick, inside & outside cement plaster in C. M. 1:3 and top cover of RCC slab 150 mm thick upto 1 mt. depth from G.L. incl. cost of excavation and refilling. With cast in situ RCC slab in two piece, with 23 mm thick brick masonry wall in C. M.1:6 with MS frame & cover & CI steps etc complete				
		Valve Chamber (1.2M X 1.2 M)	No	169.00	49,010.00	82,82,690.00
		Valve Chamber (1.8M X 1.8 M)	No	12.00	1,01,240.00	12,14,880.00

Sr.No.	Reference	Description of Item	Unit	Total Qty.	Rate	Amount
15	(IWSTW-2021, CH-14 Item no. 14.2)	CI Sluice valve / Fire hydrant & Providing & fixing of Cast iron double flanged sluice valves as per I.S.:14846-2000 fitted with cast iron cap including jointing & testing with cost of jointing material such as bolts, nuts, rubber insertions etc. all complete(tail piece if required will be paid seperately) PN 1.0				
		150mm dia	No	111.00	6,747.00	7,48,917.00
		200 mm dia	No	81.00	11,243.00	9,10,683.00
		250 mm dia	No	12.00	19,514.00	2,34,168.00
		300 mm dia	No	46.00	22,072.00	10,15,312.00
16 (a)	(IWSTW-2021, CH-20 Item no. 20.44)	Trenchless Pipe pushing method of suitable dia. hole below natural ground level and pushing MS casing pipe and insertion of carrier pipe and anti corrosive treatment, epoxy painting, PU coating and insulation sheet / spacer including excavation, shoring/ strutting, preparation and maintaining the entry and exit pit, excluding cost of Supply, laying and jointing of MS casing Pipe and carrier Pipe (For Railway and Highway crossings, Nallah crossings)				
		In all type of soil , Moorum				
		300mm to 600mm	m	2,196.00	12,480.00	2,74,06,080.00
		More than 600mm and upto 1000mm	m	60.00	14,860.00	8,91,600.00
16 (b)	(IWSTW-2021, CH-8 Item no.8.1.7.2 & 8.1.15.4)	Manufacturing, providing and supplying spirally welded/ERW/SAW/ fabricated M.S. Pipes (Commercial Quality) including procurements of plates, gas cutting to required size rolling, tack welding assembling in suitable lengths to form pipes, welding on automatic welding machine and forming "V" edge on both ends of pipes railway freight, insurance unloading from railway wagon, loading into truck, transport to stores /site unloading, stacking etc, complete as per IS 3589 and IS 5504 as applicable as per specifications (No negative tolerance in thickness is permissible).				
		Casing Pipe				
		508 mm dia 6.4 mm thick	m	2,196.00	4,873.00	1,07,01,108.00
		914 mm dia - 7.9 mm thick	m	60.00	10,867.00	6,52,020.00
17		House service connection				
17 A	(As per rate analysis)	Providing, Supplying and laying Blue MDPE (medium density polyethylene) pipes conforming to ISO 4427:1996 manufactured from virgin resin PE 80 Food grade compounded Raw Material having Blue Colour only with quality assurance certificate from quality agencies like CIPET (India) and other recognised agencies for usage in Drinking Water System. The cost shall include testing of all materials, Inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete The item also including compression fitting conforming to ISO/DIS 14236 such as female adopter, elbow, bend, reducer, Tee required for house service connection inclusive of all taxes, insurance, transportation, freight charge, inspection charges, hydro testing etc. complete. The item also includes dismantling of asphalt / metal road, excavation, refilling, watering, ramming, cosolidating and restoration of road etc. complete.				
		(i) 25 mm dia. (for 20 mm connection)	No	383.00	1,105.00	4,23,215.00
		(ii) 32 mm dia. (for 25 mm connection)	No	372.00	1,635.00	6,08,220.00
		(iii) 50 mm dia. (for 40 mm connection)	No	372.00	3,753.00	13,96,116.00
17 B	Market rate)	Providing, Supplying and fixing of Clamp Saddle (DI Strap Saddle) for House Service connections from metal pipe Water Distribution mains shall be of fastened strap type with threaded outlet for service connection. Clamp Saddle shall be suitable for nominal size of distribution mains pipe line. The strap shall be elastomer coated (insulated) type for firm grip on pipe as well as to protect the coating on the pipe and to insulate the unidentical metals. The saddle shall be single strap type upto pipe sizes of NB 600 and service outlet 15mm, 20mm & 25mm. Fasteners shall be of threaded nutbolt- washer type. The sealing between the saddle and mains shall be obtained by using a profiled elastomer seal matching to the curvature of the pipe. The seal shall be of elastomer type, suitable for all potable water application. The material of construction of the body, straps, fasteners etc, shall be of non corrosive material such as engineering plastic (PE/PP) or stainless steel or a combination of both.				
		HOUSE SERVICE CONNECTION (3/4") 25mm	No	383.00	1,450.00	5,55,350.00
		HOUSE SERVICE CONNECTION (1") 32mm	No	372.00	1,545.00	5,74,740.00
		HOUSE SERVICE CONNECTION (1.1/2") 50mm	No	372.00	2,470.00	9,18,840.00
17 C	(IWSTW-2021, CH-6 Item no. 6.9)	Providing and fixing brass ferrules, tested to 21.09 kg/sq.cm. i/c boring and tapping the main .				
		20mm dia	No	383.00	723.00	2,76,909.00
		25mm dia	No	372.00	957.00	3,56,004.00
		40mm dia	No	372.00	1,990.00	7,40,280.00
17 D	(IWSTW-2021, CH-7 Item no. 7.14)	Providing, Supplying and fixing of PVC Ball Valves in PN16 rating with one end compression using Blue colour compression nut in polypropylene material & other end with female threads conforming to ISO:4422-4, certified from certified agencies suitable for food products & drinking water, female threads in accordance with ISO:7/BS:21/ IS: 554 and shall be inclusive of all cost of testing of all materials, inspection charges, transportation upto site, transit insurance, loading, unloading, stacking etc. complete. The item includes supplying & fixing of valve box PVC Ball Valve with Compression & Female Threads				
		32x25mm	No	383.00	292.00	1,11,836.00
		40x32mm	No	372.00	628.00	2,33,616.00
		63x50mm	No	372.00	1,419.00	5,27,868.00
TOTAL AMOUNT OF PART "A"						48,62,77,229.20
PART-B O&M COST						
18			O & M COST FOR ONE YEAR OF PART-B			50,77,698.15
			TOTAL AMOUNT = "A + B "			49,13,54,927.35
			SAY RS.			49,13,55,000.00

2. Sewerage Network						
Item No.	Reference	Item Description	Unit	Total Quantity	Rate (Rs.)	Amount (Rs.)
1		Earth work in excavation for foundation, trenches for pipes / cables or drains etc. by mechanical means / manual means (exceeding 30cm in depth.) including ramming of bottom, dressing of sides, disposal of excavated earth including of all lift and lead upto 50m. Disposed earth to be levelled and neatly dressed.				
a	Item no. 18.2.1, Page no. 227	Up to 1.5m depth (All kinds of ordinary soil)	Cum	5,19,161.00	151.00	7,83,93,311.00
	Item no. 18.2.1, Page no. 227	Up to 1.5m depth (Ordinary Rock)	Cum	-	261.00	-
b	Item no. 18.2.5, Page no. 227	1.5m to 3.0m depth (All kinds of ordinary soil)	Cum	2,87,312.00	181.20	5,20,60,934.40

Sr.No.	Reference	Description of Item	Unit	Total Qty.	Rate	Amount
	Item no. 18.2.5, Page no. 227	1.5m to 3.0m depth (Ordinary Rock)	Cum	-	313.20	-
c	Item no. 18.2.5, Page no. 227	3.0m to 4.5m depth (All kinds of ordinary soil)	Cum	1,23,773.00	217.44	2,69,13,201.12
	Item no. 18.2.5, Page no. 227	3.0m to 4.5m depth (Ordinary Rock)	Cum	-	375.84	-
d	Item no. 18.2.5, Page no. 227	4.5m to 6.0m depth (All kinds of ordinary soil)	Cum	50,611.00	260.93	1,32,05,827.01
e	Item no. 18.2.5, Page no. 227	4.5m to 6.0m depth (Ordinary Rock)	Cum	8,933.00	451.01	40,28,854.47
f	Item no. 18.2.5, Page no. 227	6.0m to 7.5m depth (All kinds of ordinary soil)	Cum	14,242.00	313.11	44,59,363.90
g	Item no. 18.2.5, Page no. 227	6.0m to 7.5m depth (Ordinary Rock)	Cum	3,562.00	541.21	19,27,788.60
h	Item no. 18.2.5, Page no. 227	7.5m to 9.0m depth (All kinds of ordinary soil)	Cum	5,242.00	375.74	19,69,609.79
i	Item no. 18.2.5, Page no. 227	7.5m to 9.0m depth (Ordinary Rock)	Cum	1,311.00	649.45	8,51,430.95
j	Item no. 18.2.5, Page no. 227	9m to 10.5m depth (All kinds of ordinary soil)	Cum	2,376.00	450.88	10,71,299.40
k	Item no. 18.2.5, Page no. 227	9m to 10.5m depth (Ordinary Rock)	Cum	595.00	779.34	4,63,708.39
l	Item no. 18.2.5, Page no. 227	10.5m to 12m depth (All kinds of ordinary soil)	Cum	679.00	541.06	3,67,379.95
m	Item no. 18.2.5, Page no. 227	10.5m to 12m depth (Ordinary Rock)	Cum	171.00	935.21	1,59,920.95
2	Item no. 18.2.7.1 Page no. 227	In or under water and/or liquid mud, including pumping out water as required.(All water that may accumulate in excavations during the progress of the work from seepage, (not due to the negligence of the contractor), shall be bailed, pumped out or otherwise removed. The contractor shall take adequate measures for bailing and/or pumping out water from excavations and/or pumping out water from excavations and construct diversion channels, bunds, sumps, etc)		-		-
		For 1.5m to 3.0m depth	Cum	2,87,312.00	36.24	1,04,12,186.88
		For 3.0m to 4.5m depth	Cum	1,23,773.00	43.49	53,82,640.23
		For 4.5m to 6.0m depth	Cum	59,542.00	52.19	31,07,235.00
		For 6.0m to 7.5m depth	Cum	17,802.00	62.62	11,14,809.67
		For 7.5m to 9.0m depth	Cum	6,553.00	75.15	4,92,440.03
		For 9.0m to 10.5m depth	Cum	2,969.00	90.18	2,67,734.68
		For 10.5m to 12m depth	Cum	848.00	108.21	91,763.83
3	Item no. 18.3.3 Page no. 228	Filling with sand for pipe bedding or over the pipe including supply of sand.	Cum	7,017.00	720.00	50,52,240.00
4	Item no. 18.14.6 Page no. 229	Providing and laying in position Plain cement concrete (PCC) of specified grade excluding the cost of centering and shuttering,Cement concrete grade M-15 (Nominal Mix) with 40 mm maximum size of stone aggregate	Cum	1,790.00	4,663.00	83,46,770.00
5	CPWD SOR Item no. 16.81 Page no. 259	Providing and erecting 2.00 metre high temporary barricading at site; each panel of size 2.50mx2.00m made of 40x40x6mm angle iron or 50x50x3mm hollow MS tube posts/horizontal members/bracings covered with 1.63mm thick MS sheet. The sheet shall be fixed with 30x5mm MS flat by suitable welding/riveting. The panels shall be made so that gap of 50cm above the ground is available making overall height as 2.5m. MS channel ISLC 75 @ 5.70 kg/m, 50cm long shall be provided at the bottom having oval shaped holes of size 50x25mm at both ends with 50cm long MS angle 40x40x6mm bracing. Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250mm long expansion fasteners at both ends. The work shall be executed as per drawing/ direction of Engineer-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Engineer-in Charge. The barricading provided shall be retained in position at site continuously i/c shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, painting, all incidentals, labour materials, equipments and works required to execute the job. The barricading shall not be removed without prior approval of Engineer-in-Charge. (Note :- One time payment shall be made for providing barricading from start of work till completion of work i/c shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).	Rmt	17,500.00	2,541.00	4,44,67,500.00
6	Building SOR Item no. 2.19.3 Page no. 18	Open timbering in trenches including strutting and shoring complete (measurements to be taken of the face area timbered):		-		-
a		Depth not exceeding 1.5 m.	Sqm	2,94,735.00	59.00	1,73,89,365.00
b		Depth exceeding 1.5 m but not exceeding 3 m.	Sqm	2,94,735.00	62.00	1,82,73,570.00
c		Depth exceeding 3 m but not exceeding 4.5 m.	Sqm	2,93,079.00	66.00	1,93,43,214.00
d	Add 5%	Depth exceeding 4.5 m but not exceeding 6.0 m.	Sqm	2,67,393.00	70.00	1,87,17,510.00
e	approx.	Depth exceeding 6.0 m but not exceeding 7.5 m.	Sqm	1,33,717.00	74.00	98,95,058.00
f	based on	Depth exceeding 7.5 m but not exceeding 9.0 m.	Sqm	79,192.00	78.00	61,76,976.00

Sr.No.	Reference	Description of Item	Unit	Total Qty.	Rate	Amount
g	Item no.	Depth exceeding 9.0 m but not exceeding 10.5 m.	Sqm	24,565.00	82.00	20,14,330.00
h	2.19.3, Page	Depth exceeding 10.5 m but not exceeding 12 m.	Sqm	2,705.00	87.00	2,35,335.00
7	Item no. 12.5 Page no. 156	Providing, Laying and Jointing non-pressure (NP4) RCC socket & spigot pipes with rubber gasket joint including testing of joints.		-		-
a		250 dia pipe NP4	Rmt	56,165.00	792.00	4,44,82,680.00
b		300 dia pipe NP4	Rmt	31,245.00	1,134.00	3,54,31,830.00
c		450 dia pipe NP4	Rmt	4,950.00	2,681.00	1,32,70,950.00
d		600 dia pipe NP4	Rmt	3,910.00	4,173.00	1,63,16,430.00
e		900 dia pipe NP4	Rmt	1,975.00	7,844.00	1,54,91,900.00
8	Item no. 18.2.8, Page no. 228	Filling by available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cum	5,08,557.00	89.00	4,52,61,573.00
a	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 1.5m to 3.0m depth	Cum	2,68,006.00	126.00	3,37,68,756.00
b	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 3.0m to 4.5m depth	Cum	1,07,962.00	163.00	1,75,97,806.00
c	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 4.5m to 6.0m depth	Cum	46,319.00	200.00	92,63,800.00
d	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 6.0m to 7.5m depth	Cum	14,492.00	237.00	34,34,604.00
e	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 7.5m to 9.0m depth	Cum	5,078.00	274.00	13,91,372.00
f	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 9.0m to 10.5m depth	Cum	1,783.00	311.00	5,54,513.00
g	Item no. 18.3.1, Page no. 228	Extra for every additional lift of 1.5 m or part thereof in. Total Excavation 10.5m to 12m depth	Cum	286.00	348.00	99,528.00
9		Extra for every additional lead above item No. 1		-		-
a	Item no. 18.2.6, Page no. 227	Carting Up to 1 Km	Cum	65,477.00	92.87	60,80,848.99
b	Cartage of Material, Building S.O.P.	Carting 1Km to 2 Km	Cum	32,740.00	17.53	5,73,932.20
c		Carting 2Km to 3 Km	Cum	19,645.00	17.33	3,40,447.85
10	Item no. 17.9 Page no. 213	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 900mm and 1055mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS foot steps, supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15A,B,C,D) {Note:- Only Excavation as per actual shall be paid separately}	Nos	4.00	12,494.00	49,976.00
11	Item no. 17.9.1 Page no. 213	Extra for increasing depth of manhole beyond 1055mm and upto 1254mm with extension piece of internal dia 1000mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)	Rmt	4.00	9,135.00	36,540.00
12	Item no. 17.10 Page no. 214	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1200mm and 1255mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS foot steps, , supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15E,F,G,H) {Note:- Only Excavation as per actual shall be paid separately}	Nos	4.00	18,568.00	74,272.00
13	Item no. 17.10.1 Page no. 214	Extra for increasing depth of manhole beyond 1255mm and upto 1554mm with extension piece of internal dia 1200mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)	Rmt	4.00	9,135.00	36,540.00
14	Item no. 17.11 Page no. 215	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1500mm and 1555mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS foot steps, , supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15I,J,K,L) {Note:- Excavation as per actual shall be paid separately}	Nos	2,634.00	24,395.00	6,42,56,430.00
15	Item no. 17.11.1 Page no. 215	Extra for increasing depth of manhole beyond 1555mm and upto 6000mm with extension piece of internal dia 1500mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)	Rmt	6,104.00	11,818.00	7,21,37,072.00

Sr.No.	Reference	Description of Item	Unit	Total Qty.	Rate	Amount
16	Item no. 17.12 Page no. 215	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia. 1800mm and 6000mm depth, conical piece, wall thickness 125mm, and jointing of circular rings of required height as per depth of manhole below conical piece and having steel reinforcement in all pieces of manhole including cast-in-situ PCC M-10 grade (1:3:6) foundation, PCC M-10 grade benching and channel portion complete with curing, compaction and form work, supplying and fixing of plastic encapsulated CI/MS foot steps, , supply & fixing of heavy duty (HD-20) SFRC cover and frame as per IS 12592 fixed in Cement concrete 1:2:4 (nominal mix) with stone aggregate 20mm nominal size including centering and shuttering , steel reinforcement etc. complete in all respect including testing for water tightness, as per specification and the direction of the Engineer, Depth of manhole shall be considered as the vertical distance from top of the manhole cover to the outgoing invert of main drain channel (as per Drawing No. - 15M,N,O,P) {Note:- Excavation as per actual shall be paid separately}	Nos	294.00	1,00,241.00	2,94,70,854.00
17	Item no. 17.12.1 Page no. 216	Extra for increasing depth of manhole beyond 6000mm and upto 14000mm with extension piece of internal dia 1800mm as per drawing and direction of Engineer. (Excavation as per actual shall be paid separately)	Rmt	555.00	16,558.00	91,89,690.00
18		Providing SCI drop connection with SCI drop pipe and bend encased all round with Cement concrete grade M-5 (Nominal Mix) with stone aggregate 40mm nominal size including cutting holes and making good with brick work in cement mortar 1:5(1 cement:5 fine sand) plastered with cement mortar 1:3 (1 cement: 3 coarse sand) on inside walls including lead caulked joints and jointing SW pipes & SCI pipes with stiff cement mortar 1:1(1 cement: 1sand) including making required channel etc. complete.		-		-
(i)	17.20.1	For 100 mm drop connection	No.	120.00	5,428.00	6,51,360.00
(ii)	17.20.2	For 150mm dia drop connection	No.	80.00	5,726.00	4,58,080.00
(iii)		Extra rate for depths of drop more than 60 cm		-		-
	17.20.4	(a) 100mm dia Sand cast iron drop connection	Rmt	50.00	1,589.00	79,450.00
	17.20.5	(b) 150mm dia Sand cast iron drop connection	Rmt	50.00	2,258.00	1,12,900.00
19	Item no. 20.44.1.1 Page no. 266 + Item no. 8.1.9.2 Page no. 121	Trenchless Pipe pushing method of suitable dia. hole below natural ground level and pushing MS casing pipe and insertion of carrier pipe and anti corrosive treatment, epoxy painting, PU coating and insulation sheet / spacer including excavation, shoring/ strutting, preparation and maintaining the entry and exit pit, including cost of Supply, laying and jointing of MS casing Pipe (For Railway and Highway crossings, Nallah crossings)				-
	Item no. 20.44.1.1 Page no. 266 + Item no. 8.1.9.2 Page no. 121	610mm dia. (O.D.) 6.40mm Plate thickness MS casing pipe (For 300mm dia. RCC Carrier Pipe)	Rmt	60.00	18,351.00	11,01,060.00
	Item no. 20.44.1.1 Page no. 266 + Item no. 8.1.17.5 Page no. 123	1016mm dia. (O.D.) 8.70mm Plate thickness MS casing pipe (For 600mm dia. RCC Carrier Pipe)	Rmt	120.00	25,790.00	30,94,800.00
20	Item no. 18.15 Page no. 230	Providing and laying in position M-20 (Nominal Mix) with 20 mm maximum size of stone aggregate of reinforced cement concrete excluding the cost of centering, shuttering, finishing and reinforcement - M20 for Encasing	Cum	2,487.00	5,435.00	1,35,16,845.00
21	Item no. 5.9.1 Page no. 79, Building SOR	Centering and shuttering in cluding strutting, propping etc. and removal of form for encasing	Sqm	8,057.00	190.60	15,35,664.20
22	Item no. 18.23.4 Page no. 231	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding upto floor level including cost of binding wire, wastage and over laps upto 12mm horizontal/ inclined position of reinforcement bars in slab and beams, plinth, chajjas, lintels, upto 4.5m vertical length of reinforcement in wall columns (over laps shall be provided as per requirement of IS : 13920; IS 456 & SP : 34) etc. complete. Thermo-Mechanically Treated bars. (Fe 500 D or more)	Kg	2,48,700.00	58.00	1,44,24,600.00
23	GWSSB SOR Item no. 5.2 Page no. 102	Providing and erecting C. I. and MS ventilating columns 15 cms. dia. with C.I. ornamental cap and base fixed firmly with necessary foundation with one coat of red lead oxide paint and one coat of any approved colour with 15 cms, dia.10 Mt.in length with 0.35mt*0.35mt* M100 Encasing, stoneware or R.C.C. pipe connection with M.H. including excavation and jointing as required etc. complete. as per drawing. For 12 Mtr. Height (2 m CI and 10m MS)	Nos	27.00	41,230.00	11,13,210.00
24	Item no. 18.11.1 Page no. 229	Dismantling of flexible pavements and disposal of dismantled materials up to a lead of 1000 meter, stacking serviceable and unserviceable materials separately and as per relevant clauses of section-200.	Cum	400.00	420.00	1,68,000.00
25	Item no. 18.6 Page no. 228	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in- charge.	Cum	200.00	786.00	1,57,200.00
26	Item no. 18.9.2 Page no. 229	Demolishing brick work manually/by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 meters lead as per direction of Engineer-in-charge. In cement mortar	Cum	200.00	437.00	87,400.00
TOTAL AMOUNT OF CAPITAL COST (PART A)						81,17,66,222.49
27		Operation & Maintenance cost for One year				67,05,150.00
TOTAL AMOUNT OF O & M COST FOR ONE YEAR (PART B)						67,05,150.00
					TOTAL AMOUNT (A+B)	81,84,71,373.00
					SAY RS.	81,84,72,000.00
					TOTAL OF PACKAGE 4	1,30,98,27,000.00

O & M of Water Supply Network (package -4)(detailed description)

Sr.No.	Description	Nos	Salary P.M.	Total Amount
			(Rs.)	P.M. (Rs.)
I	Manpower			
1	Man power cost			
	Diploma Civil Engineer	1	20000.00	20000.00
	Supervisor	1	15000.00	15000.00
	line man	3	15000.00	45000.00
	helper for field work	6	13421.00	80526.00
	(minimum rate of wages Madhya Pradesh)			
1	Total salary of Staff per month			160526.00
2	Vehical with driver)			60000.00
			Sub Total of Part (I)	220526.00
			Total cost of part (I) for 12 month	2646312.00
II	Macinary , material & repairing (0.5% of capital cost			
				2431386.15
			Total (I) +(II)	5077698.15
			Say	5077700.00

O & M of Sewerage Network (package -4)(detailed description)

Sr.No.	Description	Nos	Salary P.M.	Total Amount
			(Rs.)	P.M. (Rs.)
O & M Cost for One year				
I	Manpower			
1	Man power cost			
	Diploma Civil Engineer	1	20000.00	20000.00
	Supervisor	1	15000.00	15000.00
	line man	3	15000.00	45000.00
	helper for field work	6	13421.00	80526.00
	(minimum rate of wages Madhya Pradesh)			
1	Total salary of Staff per month			160526.00
2	Vehical with driver			60000.00
Sub Total of Part (I)				220526.00
	Total cost of part (I) for 12 month			2646312.00
II	Machinery , material & repairing (0.5% of capital cost			4058831.11
Total (I) +(II)				6705143.11
	O & M cost for one year, Say			6705150.00

Signature Not Verified

Digitally signed by VAIBHAV BHAWSAR
Date: 2026.06.09 16:30:44 IST
Location: Madhya Pradesh-MP

