Indore Smart City Development Limited

BIDDING DOCUMENT FOR

Design Development & Implementation of Rain Water Harvesting /Storm Water Management system based on advanced Rain Water Harvesting Technologies at various Location in Indore City.

NIT. No.13/ISCDL/19-20;Date: 21.12.2019

INDORE SMART CITY DEVELOPMENT LIMITED

APPENDIX 2.10

TENDER DOCUMENT

For Percentage Rate Only in Works Department and Other Department

NIT Number and Date : **NIT. No.13/ISCDL/19-20Date; 21.12.2019**

Agreement Number and Date : _____

Name of Work	:	Design Development & Implementation of Rain Water Harvesting /Storm Water Management system based on advanced Rain Water Harvesting Technologies at various Location in Indore City.
Name of the Contractor	:	
Probable Amount of Contract	:	
(Rs. In Figure)	:	**Rs. 6.75 Crores**
(Rs. In Words)	:	**Rs. Six Crore Seventy-Five Lakh Only**
Contract Amount	:	
(Rs. In Figure)	:	_____
(Rs. In Words)	:	_____
Stipulated Period of Completion	:	**01 Year for Construction** **03 years for Operations & Maintenance**

INDORE SMART CITY DEVELOPMENT LIMITED, INDORE

Smart City Office, Nehru Park Campus, Indore – 452003
E-mail: smartcityindore16@gmail.com; Website: www.smartcityindore.org
CIN: U75100MP2016SGC035528

NIT. No.13/ISCDL/19-20 **Date; 21.12.2019**

SECTION-01

Notice Inviting Tenders

Indore Smart City Development Limited invites online percentage rate tenders from experienced and reputed contractors for the work as mentioned below. Interested eligible & experienced firms may submit their proposals on e-procurement portal i.e. www.mptenders.gov.in

No.	Name of Work:	Estimated Cost of Services	Cost of Tender Form	Earnest Money Deposit	Duration
1	Design Development & Implementation of Rain Water Harvesting /Storm Water Management system based on advanced Rain Water Harvesting Technologies at various Location in Indore City.	Rs. 6.75 Crores	Rs. 20,000/-	Rs. 6.75 Lakh	1Year for Construction 3 years for O & M

Key Dates: -

S. No.	Description	Date and Time
1.	Last date for Purchase of Tender (Online)	22.01.2020 till 17:30 Hrs.
2.	Last date for submission of tender (Online)	22.01.2020 till 17:30 Hrs.
3.	Prebid Meeting	07.01.2020 at 15.00 Hrs. at ISCDL Office Nehru Park, Indore
4.	Last date for Submission of Hard Copy of Technical Bid	24.01.2020 till 15:00 Hrs.
5.	Technical bid opening (Online)	24.01.2020 at 16:00 Hrs.

Note: -

1. Tender Document and other details shall be available on: - Website- www.mptenders.gov.in
2. Amendment to NIT, if any would be published on website www.mptenders.gov.in
3. The EMD shall be in the form of online payment using Debit Card/ Credit Card/ Internet Banking or System Generated Challan.

Chief Executive Officer
Indore Smart City Development Limited

INDORE SMART CITY DEVELOPMENT LIMITED

NOTICE INVITING e-TENDERS

NIT. No.13/ISCDL/19-20; Date; 21.12.2019

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No.	Name of Work:	Estimated Cost of Services	Cost of Tender Form	Earnest Money Deposit	Duration
1	Design Development & Implementation of Rain Water Harvesting /Storm Water Management system based on advanced Rain Water Harvesting Technologies at various Location in Indore City Indore City.	Rs. 6.75 Crore	Rs. 20,000/-	Rs. 6.75 Lakh	1 Year for Construction 3 years for O & M

1. All details relating to the Bid Document(s) can be viewed and downloaded from the website mentioned in NIT.
2. Bid document can be purchased after making online payment of portal fees through Credit/Debit/Cash Card/internet banking.
3. At the time of submission of the Bid the eligible bidder shall be required to:
   i. Pay the cost of Bid Document;
   ii. Deposit the Earnest Money;
   iii. Submit a check list; and
   iv. Submit an affidavit.

Details can be seen in the Bid Data Sheet

   (a) The bidder should have valid EPF, ESI & GST registrations.

   (b) Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the earnest money deposit.

4. Bidder should have Enlistment Order/ Registration Certificate of the B & R Contractor and/or specialized agency having approved from CGWB/ GRIHA or their authorized Convertor/vendor scanned copy to be uploaded.
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. Amendment to NIT, if any, would be published on website only, and not in Newspaper.

Chief Executive Officer

Indore Smart City Development Ltd., Indore

SECTION 2

INSTRUCTIONS TO BIDDERS (ITB)

A. GENERAL

1. INTRODUCTION

Rainwater harvesting is an important environment friendly approach dubbed as a Green Practice which has double benefit in both keeping the groundwater tale undisturbed and charging the aquifer. The increasing urbanization lead to concentration population density at places resulting into uneven drawing of ground water. With this proposal for rain Water Harvesting, Indore will shift focus towards using rainwater, the groundwater there may gradually fall back to its normal level thus ensuring the eco-balance not lost.

a. The need for the project:

i. To aid towards the greater objective of water management and conservation and to increase recharge of groundwater by capturing and storing rainwater. Rainwater harvesting from rooftop run-offs and natural waterbodies augment the community development.

ii. To minimize cost of draining storm water, get rid of water logging in the vicinity and put into use all the waterbodies in and around the campus for some good purpose.

iii. To use surface water instead of groundwater in daily works like washing, watering land link irrigation and gardening, cooking and canteen cores, it is required to build storing tank to directly collect rainwater and construct pits to collect rooftop run-offs and water from storm water drains etc. and then after proper filtering in settlement tanks and filtration chamber, use the water in daily works.

iv. Adopt good practices which are environment friendly and help to eradicate pollution and possible greenhouse effects.

Rain Water harvesting till was done using conventional methods there is a need to construct a desilting chamber with jump walls which is cumber some and costly cleaning process and then there was a need to create RCC structure like a well, which is time consuming and costly construction.

Here we have proposed a scientific technology "**Modular Cross Wave Technology**" which has the following benefits.

i. Quick to make and it is accident free.
ii. Very low maintenance and construction is almost at par with the conventional technology.
iii. Much longer life because recycled material is used which is approved by GRIHA.
iv. It can be used anywhere such as parks, gardens, playgrounds and in parking lots wherein land can be re-used for any other purpose.
v. Non-Polluting, Eco Friendly, Non-Degradable and has much more life than the conventional technology.

b. The scope of work shall briefly include

Design, Supply, Construction and Installation of Copolymer Cross wave Technology based Rain Water Harvesting System/ Strom Water Management System at various location of Indore Municipal Corporation under Smart Cities Mission as per the detailed list given. The Pit size is worked out depending on catchment and surface run off.

The locations are can be changed at the time of execution depending on suitability. Both ABD & Pan City area has been proposed for considering Rain Water Harvesting.

2. GENERAL QUALITY OF WORK:

The work shall have to be executed in accordance with the drawings, technical specifications specified in the Bid Data Sheet/ Contract Data, and shall have to meet high 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

4.1 The bidder can be an individual entity or a joint venture (if permitted as per Bid Data sheet). In case J.V. is permitted, the requirement of joint venture shall be as per the Bid Data Sheet.

4.2 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 ULB.

6. SITE VISIT AND EXAMINATION OF WORKS

The bidder is advised to visit and examine 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 into a contract for construction of the work. All costs shall have to be borne by the bidder.

A. BID DOCUMENTS

7. CONTENT OF BID DOCUMENTS

The Bid Document comprises of the following documents:

1. NIT with all amendments.
2. Instructions to Bidders,
3. Conditions of Contract:
    i. Part I General Conditions of Contract and Contract Data; and
    ii. Part II Special Conditions of Contract.
4. Specifications
5. Drawings,
6. Priced Bill of Quantities
7. Technical and Financial Bid
8. Letter of Acceptance
9. Agreement and
10. 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 (WHERE 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 gist 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 only.

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.

11. PREPARATION OF BID

The bidders have to prepare their bids online, encrypt their Bid Data in the Bid Forms and submit Bid Seals (Hashes) of all the envelopes and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the Notice Inviting e-Tenders after signing of the same by the Digital Signature of their authorized representative.

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. **Envelope 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. Bid Document Fee- Copy of online payment receipt of the cost of Bid Document;
iii. Earnest Money- copy of online payment receipt scanned on their company's letter head with the details of payment.
iv. EPF, ESI and GST Registration.
v. An affidavit duly notarized.
vi. Checklist for all document

Part 2 – This shall be known as **Envelope B** and 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 enclosed with the Bid Data Sheet**. (To be submitted online only)**

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 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

14.1 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.

14.2 All the documents/ information enclosed with the technical proposals should be self- attested and certified by the Bidder. The Bidder shall be liable for forfeiture of his earnest money deposit, if any document/ information is found false/ fake/ untrue before acceptance of Bid. If it is found after acceptance of the Bid, the sanctioning authority may at his discretion forfeit his performance security/ guarantee, security deposit,enlistment deposit and take any other suitable action.

15. FINANCIAL BID

15.1 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 contract given in NIT. The overall percentage rate would apply for all items of work.

15.2 Percentage shall be quoted in figures as well as in words. If any difference in figures and words found, lower of the two shall be taken as valid and correct.

15.3 The bidder shall have to quote rates inclusive of all duties, taxes, royalties and other levies; but exclusive of GST and the Employer shall not be liable for the same. The GST shall be paid extra as applicable.

15.4 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

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

17. EARNEST MONEY DEPOSIT (EMD)

17.1 The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), of the amount specified in the Bid Data Sheet.

17.2 The EMD shall be in the form of Online payment using Debit Card/ Credit Card/ Internet Banking or System Generated Challan.

Note: The bidder is advised to submit the copy of online payment receipt scanned on their company's letter heads.

17.3 Bid not accompanied by EMD details shall be liable for rejection as non-responsive.

17.4 EMD of bidders whose bids are not accepted will be returned within ten working days of the decision on the bid.

17.5 EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the Bank Guarantee of required value for Performance Security.

17.6 Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of the Earnest money deposit.

B. SUBMISSION OF BID

18. The bidder is required to submit online bid duly signed digitally, and **Envelope "A"** in physical form also at the place prescribed in the Bid Data Sheet.

A. OPENING AND EVALUATION OF BID

19. PROCEDURE

19.1 **Envelope 'A'** shall be opened first online at the time and date notified and its contents shall be checked. In cases where Envelope 'A' does not contain all requisite documents, such bid shall be treated as nonresponsive, and **Envelope "B" and/or "C"** of such bid shall not be opened.

19.2 Wherever **Envelope '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 **Envelope 'B'**. **Envelope 'C'** (Financial Bid) of bidders who are not qualified in Technical Bid **(Envelope 'B')** shall not be opened.

19.3 **Envelope 'C'** (Financial Bid) of the qualified bidders shall be opened online at the time & date notified. The bidder shall have freedom to witness opening of the **Envelope 'C'**.

19.4 After opening **Envelope 'C'** all responsive bids shall be compared to determine the lowest evaluated bid.

19.5 The Employer reserves the right to accept or reject any bid, and to annul the biding 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.

19.6 The Employer reserves the right of accepting the bid for the whole work or for a distinct part of it.

20. Confidentiality

20.1 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.

20.2 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.

C. AWARD OF CONTRACT

21. Award of Contract

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

22. Performance Security

22.1 Prior to signing of the Contract, the bidder to whom LoA has been issued shall have to furnish performance Security of the amount, form and duration, etc. as specified in the Bid Data Sheet.

22.2 The Successful Bidder shall along with the Performance Security (for an amount equal to the 5% (five percent) of the Final Amount of Contract8) provide to the Authority an irrevocable and unconditional guarantee from a Bank for a sum equivalent to as mentioned below (the "**Additional Performance Security**"), to be modified, mutatis mutandis, for this purpose as security to the Authority if the Bid Price of the Selected Bidder is lower by more than 15% with respect to the Estimated Project Cost. The Additional Performance Security shall not be treated as part of Performance Security.

a. The validity of the performance security shall be three (03) months beyond the completion of Defect Liability Period (DLP)/extended DLP (if any).

b. The validity of the additional performance security shall be 3 months beyond the actual date of completion of work including time extension if any approved by the employer/Authority for the completion of the work except DLP/Extended DLP.

23. SIGNING OF CONTRACT AGREEMENT

23.1 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.

23.2 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.

23.3 In the event 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 taking action 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 of time, 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

S.N.	Particulars	Data
1	Office inviting Tender	Indore Smart City Development Ltd.
2,3	NIT No., Date	**NIT. No.13/ISCDL/19-20Date; 21.12.2019**
4	Bid document download Available from date & time	
5	Website link	http://www.mptenders.gov.in

Section 1 – NIT

Clause Reference	Particulars	Data
2	Portal fees	Rs .....(shall be reflected on the portal)
3	Cost of bid document	Rs. 20,000/-
	Cost of bid document payable at	To be paid at the portal
	Cost of bid document in favor of	
4	Affidavit format	Annexure B
5	Pre-qualifications required	Yes
	If Yes, details	As per Annexure C
6	Special Eligibility	-
	If Yes, details	As per Annexure D
7	Key Dates	As per Annexure A

Section 2 – ITB

Clause Reference	Particulars	Data
1	Name of work	
2	Specifications	Annexure E
3	Procedure for participation in e- tendering	Annexure F
	Whether Joint-venture is allowed	Allowed
4	If yes, requirement for Joint venture	Refer Pre-qualification criteria
	Pre-bid meeting to held	Yes
9	If Yes, Date, Time & Place	07.01.2020 1500 hrs office of Chief Executive Officer Indore Smart City Development Limited (ISCDL), Nehru Park, Indore.
12	Envelope A containing: Registration number or proof of application for registration & organizational details as per Annexure H, an affidavit duly notarized as per Annexure B Should reach in physical form	**At the office of Chief Executive Officer Indore Smart City Development Limited (ISCDL), Nehru Park, Indore.**
14	Envelope-B Technical Proposal	Annexure - I (Format I-1 to I-5)
	Envelope-C Financial Bid	Annexure – J
15	Materials to be issued by the department	Nil
	Period of Validity of Bid	120 Days
16	Earnest Money Deposit	Rs. 6.75 Lakh

	Forms of Earnest Money Deposit	The EMD shall be in the form of online payment using Debit Card/ Credit Card/ Internet Banking or System Generated Challan.
	EMD valid for a period of	120 days
17	FDR (Fixed Deposit Receipt) must be drawn in favour of	Not Applicable
21	Letter of Acceptance (LoA)	Annexure L
	Amount of Performance Security	The Contractor shall, within fifteen (15) days of the notification of Letter of Intent, provide a performance security for the due performance of the Contract in the amount equivalent to Five percent (5%) of the Contract Price, with a validity up to ninety (90) days beyond the Defect Liability Period. The same shall be extended by the Contractor time to time till ninety (90) days beyond the actual Defect Liability Period, as may be required under the Contract.
	Additional Performance Security, if any	Same % below 15% quoted by the bidder.
	Performance security in the format	Annexure M
	Performance security in favour of	Executive Director, ISCDL, Indore
	Performance security valid up to	Till issue of Physical Completion Certificate as per clause 35.1

Annexure A

Key Dates & Events

As per NIT

Annexure B

(See clause 3 of Section 1-NIT)

|| AFFIDAVIT ||

(To be contained in Envelope A)
(On Non-Judicial Stamp of Rs.100)

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 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 ULB).

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 physical 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 3 are correct to the best of my knowledge and belief.

Verified today_____(dated) at_____(place).

Signature with Seal of the Deponent (bidder)

(See clause 5 of Section 1 NIT)

Annexure C

PRE-QUALIFICATIONS CRITERIA

a. The Bidder should have been in this Business for at least 3 (Three) years as on date of Bid Submission; and
Similar nature of Work: The Bidder in their own name should have satisfactorily completed at least one similar nature of work approved /recommended makes with any Govt. Dept./Authority of India during last 7 years ending 31st March 2018.
Similar works means: Rain Water Harvesting System based on Advanced Rain Water Harvesting Technology like Co-polymer based cross wave technology, CGWB/ GRIHA/ IGBC approved projects or equivalent technology on EPC/ DBO Basis as main contractor.

Note:

i. The value of executed works shall be brought to current costing level by enhancing the actual value of work at compound rate of 10 % per annum; calculated from the date of completion to last date of receipt of applications for tenders.

ii. The Bidder should demonstrate through submission of experience certificates for collective experience

iii. Bidder should submit Client/Users Certificate of satisfaction for the work they have executed. The certificate for experience & performance report must be issued by the User Agencies.

b. The bidder should be manufacture or authorized dealer for polymer structure (cross-wave) and should have manufacturer Authorization Certificate.
c. JV/ Consortium is allowed (Maximum Two including lead member).
d. The Lead Bidder or Consortium/ JV should have Average Annual Turnover of 30% of the Estimated Project Cost during the last three financial years FY 2016-17, 2017-18, 2018-19 (as per the last published audited balance sheets)
e. Turnover should be calculated as total payments received by the Bidder for contracts completed or under execution.

Note:

i. Bidders are required to submit the corresponding Work Order copies & Execution/ Completion Certificates issued by the Government /Semi Government /Public sectors undertaking / Zilla Panchayat or respective clients. The Certificates should be issued by respective authority (Not below Executive Engineer level) of client. ISCDL may call for original certificates for verification.

Annexure D

(See Clause 6 of Section 1 NIT)

SPECIAL ELIGIBILITY CRITERIA

Annexure E

(See clause 2 of Section 2-ITB & Clause 10 of GCC)

Scope of work, Specifications and Employer's Requirements-

Indore Smart City Development Corporation Limited (ISDCL) has proposed implementation of advanced Rain water harvesting (RWH) system in Indore city under the smart city mission.

The scope of this enquiry covers the following

Review and assess the suitability of Advanced groundwater recharge structures in the project area and as approved by Engineer in charge.

Carrying out necessary hydro-geological investigations for deciding the type of rainwater harvesting structure and its potential.

Construction of Rainwater harvesting system with advanced technology (Cross polymer or any other equivalent) with proper inflow, filtering & outflow arrangements including de-silting chamber and allied Civil Works for the same.

Study of existing and proposed storm water drainage system for the smooth execution & proper integration of SWD (Storm water Drainage) with the proposed RWH system.

With reference to the same, suitable locations in the ABD / Pan City area have been identified for the work. The scope starts from the collection of water released by down take pipes of buildings / Storm water drains near buildings and routing the same to the recharge structure & excess water has to be discharged to the nearest Storm water drains/water body as applicable.

The Contractor‟s scope of work shall cover furnishing all materials, equipment's, plant, labour, transport, tools and all other services necessary for the complete execution of works, including all surveying and setting out necessary for the works and cleanup of working areas after completion of the works with all safety precautions & Environmental protections.

The WORK includes but is not limited to the execution of the advanced Rainwater Harvesting system -
Carrying out hydro-geological investigations to decide the number of location of the recharge structure & recharge potential of the structure. (As per Clause 1.1 XV- XXI)
Site cleaning
Excavation for the Ground water recharge structure, Drilling of borehole, casing (if required),
Diversion of storm water drain and necessary civil works for the same Completion of work and handing over to ISDCL
Operation and maintenance as specified by ISDCL

IV. The WORK includes excavation, drilling, filling, other necessary construction works for the structure mentioned above and all other items of work though not specifically stated, but required for the satisfactory completion of works.
The WORK includes but is not limited to the construction of the above noted structures and requisite infrastructure facilities.

VI. Contractor shall be entirely responsible for coordinating all activities with the other

contractors / vendors of the project, which shall include adherence to overall work schedule, correlating and accommodating interdependent activities between other works and Civil works, ensuring successful completion of works and satisfactory operation of systems etc.

VII. During the Defect Liability Period, Contractor shall inspect all the works carried out by him in every three months interval or as instructed by the ISCDL. During inspection, Contractor shall prepare and maintain the records of the defects, if any. These records shall get certified from ISCDL.

VIII. Contractor has to provide following preliminaries during the execution of the works at no extra cost.

Construction water and construction power arrangement as mentioned in Contract Summary. Contractor has to obtain the written approval from ISCDL before commencement of work.
Before start of work, Contractor to submit at least 8 days in advance the detail "Execution Methodology" and micro schedule and get the same approved from ISCDL. Contractor should complete the work within the time schedule as specified by the ISCDCL. All changes should be discussed with ISCDL before taking up the work.

Taking and furnishing, necessary colour photographs before start, during construction and after completion of each of the activities and whenever required as deemed necessary and submitting coloured photographic work progress report along with RA bill.

The Contractor shall make necessary access roads to working areas and maintain the same, if such access road does not exist, at his own cost (Rate quoted shall be inclusive of all such preliminary works).

IX. Contractor should execute the above scope of work as per Construction safety standard and as per ISCDL guidelines. In case of conflict in these documents, the stringent shall govern.

It is not the intent to specify completely herein all details of design and construction. However, the work executed shall conform in all respect to high standards of engineering design and workmanship and be capable of performing in continuous commercial operation in a manner acceptable to ISCDL who will interpret the meaning of drawings and specifications and shall have the power to reject any work or materials which in his judgment are not in full accord therewith.

XI. All the work carried out by the contractor and methodology adopted by him shall be fully in harmony with the clean environment and any operation in general shall not be detrimental to the safety and peace of the surroundings.

XII. The Contractor is required to quote item rates for the items listed in Price bid of this tender. If so desired, Contractor is advised to visit the site, ascertain the levels and the strata by carrying out the survey and investigation at his own cost before submitting the bid. Submission of Tender document means it is deemed to Contractor has visited the site and has understood the requirements. Contractor is advised to ascertain the site conditions and the strata by carrying out the survey and investigation at his own cost before submitting the bid.

XIII. The Contractor shall carry out the necessary hydro-geological investigations in consultation with PMC, and ISCDL at his own cost to ascertain the subsurface profile and hydrogeology to decide the depth of recharge well. Reference benchmark within plot will be indicated to the Contractor for carrying out the above work, the cost of

necessary surveys mentioned above is deemed to be included for the price quoted in Price Bid.

XIV. Operation And Maintenance Of Recharge Structure

De-silting & Filtering arrangements: Recharge units are susceptible for clogging due to sediment deposits hence, the total or direct entry of runoff shall be avoided. De-silting chamber & Filtering unit arrangement shall be cleaned before the start of monsoon.

Conveyance arrangement till the recharge structures (Inlet & outlet Pipes/drains) shall be periodically examined & necessary replacements & repairs for the damaged portion shall be carried out.

Geo synthetic filter fabric wrapped around recharge structure units shall be examined at least once in 3 years for if there any wear and tear in the fabric/recharge unit & replacement of the same shall be made if any.

Bypass arrangement to be proposed to divert the initial rain as it contains heavy silt and other wastes.
Ideally the construction of the recharge unit shall be placed after the site has been stabilized. The inspection shall be carried after every major storm to ensure proper stabilization.
The recharge well shall be inspected for the accumulated sediments, leaves or debris. The Contractor shall install proper sign boards for pre and post constructions.
Scope of Hydro Geological Investigation to be carried out by Contractor.

To obtain, study and synthesize background information including the geology, hydrogeology and existing borehole data, for the purpose of improving the quality of assessment and preparing comprehensive hydro geological report,

To carry out hydro-geological evaluation and geophysical investigations in the selected areas in Plot to determine groundwater recharge potential and appropriateness of drilling boreholes at the sites.
To prepare hydro-geological survey reports in conformity with the provisions of the relevant standards including the following:
Site Name, Location and GPS readings
Geology and hydrogeology
Existing borehole data information. Geophysical data and analysis
Conclusions and recommendations, including the groundwater potential of the investigated sites within plot, name and location of the site recommended for drilling, recommended maximum drilling depth in meters and appropriate drilling method, optimum spacing for deep bore holes for the deep recharge up to aquifer considering the existing plot plan.

Hydro geological Study

Collection of hydro-geological information from field, to establish a water balance for the proposed study area (To study topography, lithology, soil, climate, drainage system, proximity to water bodies, recharge capacity of the plot area in mm/day and in cum/sqm/m depth, inventory of existing bore-wells, ground water resource status).based on the available reports

Field investigations to establish existing scenario of ground water storage in the site area. Assessing the groundwater resource in the study area.
Conducting the pumping test for the estimation of aquifer parameter
Hydro geological characteristics to include Aquifer transmissivity
Borehole specific capacities

Storage coefficient and specific yield Hydraulic conductivity
Groundwater flux
Estimation of depth of deep recharge shaft for the plot /area and the recharge capacity and recharge rate in mm/day and also cum/sqm/m depth in saturated condition

Identification of potential deep recharge locations in the plot/area if deep recharge is resorted to.

All the above works should be carried out in accordance to the guidelines laid in IS 15755.
Rainwater Harvesting

Study the scope to augment water resources through rainwater harvesting in the study area as per the requirements stated in the scope above.

Selection of sites for the detailed design of suitable rainwater harvesting structures including roof top rainwater harvesting structures in the study area for deep/shallow groundwater recharge.

Conducting actual deep water percolation test with the help of water made available by client and recording the observations in presence of engineer in charge to check the effectiveness of the deep recharge before implementation of scheme.

Geophysical Survey

It is proposed to carry out electrical resistivity survey by conducting Vertical electrical soundings (VES) upto a depth of 150 mts. By integrating hydro-geological and geo-physical data ground water potential zones shall be demarcated and points for drilling bore wells shall be located. Details such as total number of feasible points with order of preference for drilling, depth to be drilled, expected casing depth, approximate yield and probable source depths shall be provided.
Proposed RWH structure locations – Appended with the table in Clause 1.2.

Posting Of Experienced Hydro-geologist/Engineer And Specialist

The CONTRACTOR shall station an experienced hydro geologist/Engineer at Site throughout the duration of the work. This Engineer shall be in charge of the entire fieldwork and shall be responsible to the OWNER/ENGINEER in regard to all day-to-day matters of fieldwork. The BIDDER shall submit a bio data of this Engineer along with an undertaking that the entire work will be in direct charge of this Engineer only.

The BIDDER shall submit an undertaking with his Bid that only he shall employ the Engineer(s) and Specialist(s) indicated by him in his bid for these investigations, subject to the approval of the OWNER/ ENGINEER. Non-compliance with this condition will render the bid invalid.

General

The CONTRACTOR shall draw the attention of the ENGINEER, if in the opinion of the CONTRACTOR, any unique or peculiar feature is observed during the course of the investigation.

Modification in requirements may be made during the course of the investigations after review of field observations and test results or if there are any changes in requirements.
XXI. Reporting Requirements
Following points to be covered in the Hydro geological Investigations Report Name and details of the project in

brief
Location and description of proposed Activity Details of climate in brief
Details of hydrogeology

Details of neighboring boreholes, including location, distance from proposed borehole or boreholes, number and construction details, age, current status and use, current abstraction and use.

Description and details (including raw and processed data) of prospecting methods adopted,
e.g. remote sensing, geophysics, geological and or Hydro-geological cross sections. Hydro- geological characteristics and analysis, to include but not necessarily be limited to, the following:
Aquifer transmissivity Borehole specific capacities
Storage coefficient and or specific yield Hydraulic conductivity
Groundwater flux
Estimated mean annual recharge, and sensitivity to external factors Analysis of the reserve
Impact of proposed activity on aquifer, water quality, other abstractors, including likelihood of coalescing cones of depression and implications for other groundwater users in any potentially impacted areas.
Recommendations for borehole development, to include but not limited to, the following:

Locations of recommended borehole(s) expressed as a coordinate(s) and indicated on a plot plan

Recommendations regarding borehole or well density and minimum spacing in the project area
Recommended depth and maximum diameter
Any other relevant information (e.g. need to monitor neighboring boreholes during tests).

This report is written so as to cover each of the above, in so far as data limitations allow. The report also includes maps, diagrams, tables and appendices as appropriate.

Soft copy as draft report shall be submitted and after approval of the same final report shall be submitted.
Final Report shall be submitted in 3 set of Hard Copies and two set of soft copy in CD.
PROJECT AREA
The locations will be decided at the time of execution depending on suitability. Both ABD & Pan City area has been proposed for considering Rain Water Harvesting.

Note: The proposed size & location of recharge structure may decide after the detailed Hydro geological investigations keeping the quantity intact.

DESIGN CRITERIA
Total area of the plot including the roof top area of the building with different Coefficient of run off.

outlets to be Established from plot
Initial roof water to be By-Passed or prevented to enter into the system.

The total capacity of RWHS: It should recharge or detain the excess Q due to development i.e. Qafter –Qbefore. Hence the two basic parameters of permeability of soil and depth of aquifer at site will be determined by Hydro Geological investigation. For the study, data can be obtained from existing hydro-geological report with the local ground water body if available.

Every RWH unit should have a controlled-out flow for discharging maximum up to Qbefore flow to the earlier outfall to road side drain. i.e. the controlled-out flow must start discharging from the beginning of the storm and

must be limited to maximum Q before (this is similar to mass curve for finding reservoir storage).

Qbefore or Qafter of the plot must be calculated for appropriate ARI / Return Period and it shall be based on critical time of concentration for reaching to inlet of RWHs.

Must calculate O&M of RWHS duly indicating repercussions if not properly maintained. The following advantages can be claimed with the above approach:
Due to management of excess flow Qafter – Qbefore within the site, the ground water table is going to improve and helps in addressing water scarcity.

As only Qbefore is allowed to drain network, it helps in reducing the sizes of network by carrying only upto 50% of the flow as per existing calculations for Qafter flows.
Helps in controlling of downstream floods.

Helps in maintaining the same water environment at local & overall drainage network‟s catchment even after development. Finally can conclude that this approach leads to better environment than that of Qbefore.

It is an overall sustainable approach for any Integrated Water Management System.

Recharge pits with boreholes are constructed to augment recharge into phreatic aquifers where water levels are much deeper and the aquifer zones are overlain by strata having low permeability.
LIST OF RECOMMENDED MAKES

All the required components to be supplied under this contract have to be of reputed makes. The equipment of those manufacturers, who have sufficient proven experience of manufacturing the respective equipment of similar requirement, shall be considered. The respective equipment should have been manufactured, supplied, installed, commissioned successfully and should be running satisfactorily since at least last 5 years continuously. Certificates from end users, regarding their satisfactory Performances, shall have to be submitted in this regard.

Following is the list of recommended makes:

Sr.No.	Material/ Equipment	Vendor/Make
1	Non woven Geotextile	Tailor Bird, Suvi ,SGB or equivalent
2	CGWB/GRIHA approved Pure Rain Filter	Pure Rain ,Triveni ,SGB or equivalent
3	Co-Polymer cross wave /Modular cell for Rainwater Harvesting Structure	**Sekisui/ Polypipe/ Rehaya /Totestsu**
4	U-PVC Pipe	Supreme, Apolo , finolex or equivalent
5	FRP Chambers	Pure Rain ,Triveni ,SGB or equivalent

1.2 PERFORMANCE

CRITERIA GENERAL

The contractor shall carry out the work in accordance with the Detailed Design and Good for Construction drawings to be prepared by the Contractor.

Preliminary Drawings, Specifications, data sheets and other documents forming part of the Contract.

The contractor shall be fully responsible for the performance of the selected equipment (installed by him) at the specified parameters and for the efficiency of the installation to deliver the required end result.

The contractor shall guarantee that the system as installed shall perform to complete satisfaction and requirements of the owner.

The contractor shall also guarantee that the performance of various equipments individually and integrated shall not be less than the quoted capacity; also actual power consumption shall not exceed the quoted rating, during testing and commissioning, handing over and guarantee period.

Rating of all items shall be appropriate for the conditions on the particular site on which the item will be used. All the equipment shall be fit for continuous work under the most severe weather conditions of site.

At the close of the work and before issue of final certificate of virtual completion, the contractor shall furnish written performance guarantee against defective materials and workman-ship for a period of five years from date of testing, commissioning and handing over.

The Contractor shall hold himself fully responsible for reinstallation or replacement free of cost to Owner the following:

Any defective work or material supplied by the Contractor.

Any material or equipment damaged or destroyed as a result of defective workmanship by the Contractor.

MANUFACTURERS

All the equipments to be supplied under this contract have to be of reputed makes. The equipment of those manufacturers, who have sufficient proven experience of manufacturing the respective equipment of similar capacity, shall be considered. The respective equipment should have been manufactured, supplied, installed, commissioned successfully and should be running satisfactorily since at least last 3 years continuously. Certificates from end users, regarding their satisfactory Performances, shall have to be submitted in this regard.

Where manufacturers have furnished specific instructions relating to the materials used in this job, covering points not specifically mentioned in these documents, these instructions shall be followed in all cases.

Where manufacturer's names and/or catalogue numbers are given, this is an indication of the quality, standards and performance required.

For items not covered under the List of Approved Makes', contractor shall offer items of first class quality, standards and performance and obtain the approval of Construction Manager/Consultants before procuring them.

Where interfacing occurs, all equipments shall be mutually compatible in all respects.

1.3 TECHNICAL SPECIFICATIONS:

Setting out of Works, Obligatory Requirements and Specifications:

Technical Specifications mentioned below are the minimum required specifications and bidder can offer the product meeting the minimum specifications or exceed the specifications. Bidder is required to provide the offered model and make along with technical compliance and manufacturer Datasheets.

I. SITE WORK

Intimation about commencement of work:

Before commencing the works and also during progress the bidder shall give due notice to the concerned authorities, the Municipality, the Roads and Buildings and Electricity Board, Telephone Department, the Traffic Department attached to the Police, other Departments and companies as may be required to the effect that the work is being taken up in a particular locality and that necessary diversion of traffic may be arranged for. The bidder shall cooperate with the Departments concerned and provide for necessary barricading of roads, protections to existing underground mains, cables etc.

Cross Drainage

The bidder shall handle all flows from natural drainage channels intercepted by the work under these specifications, perform any additional excavation and grading for drainage as directed and maintain any temporary construction required to bypass or otherwise cause the flows to be harmless to the work and property. When the temporary construction is no longer needed and prior to acceptance of the work, the bidder shall remove the temporary construction and restore the site to its original condition as approved by the Engineer-in-Charge. The cost of all work and materials required by this paragraph shall be included by the bidder in the unit prices quoted in bill of quantities and no separate payment will be made for the same.

Stacking of Excavated Material:

Where the location of the work is such and does not permit the deposition of excavated earth while digging trenches for laying pipes, the excavated earth should be conveyed to a convenient place and deposited there temporarily, as directed by the Engineer-in-Charge. Such deposited earth shall be re- conveyed to the site of work for the purpose of refilling of trenches, if such deposited soil is suitable for refilling. The unit rate for trench work of excavation and refilling shall include the cost of such operations.

Disposal of Surplus Earth:

The rate for excavation of trench work, shall include charges of shoring, strutting, any of these contingent works. While bailing out water care should be taken to see that the bailed out water is properly channelized to flow away without stagnation or inundating the adjoining road surfaces and properties.

Shoring, Strutting and Bailing out Water :

The rate for excavation of trench work shall include charges of shoring, strutting, bailing out water wherever necessary and no extra payment will be made for any of these contingent

works. While bailing out water care should be taken to see that the bailed out water is properly channelized to flow away without stagnation or inundating the adjoining road surfaces and properties.

II. EXCAVATION WORK

Excavation for recharge structure and trench for pipes up to required depth in all kinds of strata with sorting out and stacking of useful materials and disposing off the excavated stuff up to 50-100 Meter lead as instructed by Engineer in charge including all safety precautions etc complete.

This also includes shoring, strutting, bailing or pumping out water from trenches, pits whenever necessary of required length, width and depth including extra excavations for sockets and all safety measures and provisions such as site rails fencing, lighting, watching including refilling the trenches in layers including ramming and removing& disposing off the excavated stuff to the specified lead, clearing the site etc. as stipulated in the tender specification complete before starting work and after completion of work for all lifts and soil strata as specified.

In all sorts of soil, soft murrum, hard murrum, boulders, macadam and asphalt roads including breaking of lime and cement masonry and lime concrete.

In soft rock, cement concrete, hard rock, and cutting of cement concrete and R.C.C. of any proportion, etc. with controlled blasting and or chiseling whichever is necessary and feasible as required by site conditions.

In hard rock,

Scope

This specification covers the general requirements of earthwork in excavation in different materials, site grading, filling in areas as shown in drawing, filling back around foundations, surrounding recharge pits & pipe/drain trenches tranches and conveyance and disposal of surplus soils or stacking them properly as directed by the Engineer in charge and all operations covered within the intent and purpose of this specification.

Applicable Codes

For Indian Standard Codes, please refer Clause 1.12. In all cases, the latest revision of the codes shall be referred to.

Survey & Investigations

The Contractor shall have to be carry out the relevant survey & investigations of the site, require to execute the installation of Rainwater harvesting structure and its allied works before excavation and set properly all lines and establish levels for various works such as earthwork in excavation for grading, basement, foundations, plinth filling, roads, drains, trenches, pipelines, pits etc. Such survey shall be carried out by taking accurate cross sections of the area perpendicular to established reference/ grid lines at 8 m intervals or

nearer as determined by the based on ground profile or with the proper instruction of Engineer in charge.

General

The Contractor shall furnish all tools, plants, instruments, qualified supervisory personnel, labour, materials for any temporary works, consumables, any and everything necessary, whether or not such items are specifically stated herein for completion of the job in accordance with the specification requirements.

The excavation shall be done to correct lines and levels. This shall also include, where required, proper shoring to maintain excavations and also the furnishing, erecting and maintaining of substantial barricades around excavated areas and warning lamps at night for ensuring safety.

The rates quoted shall also include for dumping of excavated materials(Rock/ soil excavated) in regular heaps, bunds, riprap with regular slopes and levelling the same so as to provide natural drainage, with all leads and lifts as directed by the Engineer in charge.

Clearing

The area to be excavated filled shall be cleared of fences, trees, plants, logs, stumps, bush, vegetation, rubbish, slush, etc. and other objectionable matter. If any roots or stumps of trees are met during excavation, they shall also be removed. The material so removed shall be burnt or disposed off as directed by the Engineer in charge. Where earth fill is intended, the area shall be stripped of all loose/ soft patches, top soil containing objectionable matter/ materials before fill commences.

The products of the clearings to be stacked in such a place and in such a manner, as directed by the Engineer in charge

In site clearing, all trees not specially marked for preservation, bamboos, jungle wood and brush wood shall be cut down and their roots grubbed up. All wood and materials from the clearing shall be the property of corporation and shall be arranged as directed by the Engineer in charge- in-charge or his authorized agent.

The materials found to be useful by the Engineer in charge shall be conveyed and properly stacked as directed within the specified limit.

All holes or hollows, whether originally existing or produced by digging up roots, shall be carefully filled up with earth, well rammed and leveled off, as may be directed shall not be paid for. The contractor shall get approval of design of shoring. The shoring shall be of sufficientstrength to resist side pressure and ensure safety from slips and blows and to prevent damage to work and property and injury to persons. It shall be removed as directed after all the items of work for which it is required are completed.

Protection: The foundation pits and trenches, etc shall be strongly fenced and red light Signals shall be kept at night in charge of watch-man to prevent accidents. Sufficient care and protective measure shall be taken to see that the excavation shall not affect or damage the adjoining structures. The contractor shall be entirely responsible for any injury to life and damage to the properties etc. Necessary protection work such as guide ropes, crossing places, barricades, the contractor at his own cost shall provide caution boards etc.

Precious Objects, Relics, Objects of Antiquity, Etc.

All gold, silver, oil, minerals, archaeological and other findings of importance, trees cut or other materials of any description and all precious stones, coins, treasures, relics, antiquities and other similar things which may be found in or upon the site shall be the property of the Owner and the Contractor shall duly preserve the same to the satisfaction of the Owner and from time to time deliver the same to such person or persons as the Owner may from time to time authorise or appoint to receive the same.

Classification

All materials to be excavated shall be classified by the Engineer in charge, as per relevant codes and standards shall be paid for at the rate tendered for that particular class of material. No distinction shall be made whether the material is dry, moist or wet. The decision of the Engineer in charge regarding the classification of the material shall be final and binding on the contactor and not be a subject matter of any appeal or arbitration.

Basic Criteria

All excavation work shall be carried out by mechanical equipment unless, in the opinion of the Engineer in charge, the work involved and time schedule permit manual work. Excavation for permanent work shall be taken out to such widths, lengths, depths and profiles as are shown on the drawings or such other lines and grades as may be specified by the Engineer in charge. Rough excavation shall be carried out to a depth 150 mm above the final level. The balance shall be excavated with special care. Soft pockets shall be removed even below the final level and extra excavation filled up as directed by the Engineer in charge. The final excavation if so instructed by the Engineer in charge should be carried out just prior to laying the mud-mat. The Contractor may, for facility of work or similar other reasons can excavate, and also backfill later, if so approved by the Engineer in charge, at his own cost outside the lines shown on the drawings or directed by the Engineer in charge. Should any excavation be taken below the specified elevations, the Contractor shall fill it up, with concrete of the same class as in the foundation resting thereon, up to the required elevation. No extra shall be claimed by the Contractor on this account.

All excavation shall be done to the minimum dimensions as required for safety and working facility. Prior approval of the Engineer in charge shall be obtained by the Contractor in each individual case, for the method he proposes to adopt for the excavation, including dimensions,

side slopes, dewatering, disposal, etc. This approval, however, shall not in any way relieve the Contractor of his responsibility for any consequent loss or damage. The excavation must be carried out in the most expeditious and efficient manner. Side slopes shall be as steep as will stand safely for the actual soil conditions encountered. Every precaution shall be taken to prevent slips. Should slips occur, the slipped material shall be removed and the slope dressed to a modified stable slope. Removal of the slipped earth will not be paid for and Contractor

shall take adequate precautions to avoid slips in view of the restricted plot and presence of buildings/ structures in nearby vicinity.

Excavation shall be carried out with such tools, tackles and equipment as described herein before. Blasting or other methods may be resorted to in the case of hard rock; however not without the specific permission of the Engineer in charge.

Dewatering :

Unless specially provided for as a separate item in the contract, the rate of excavation would include bailing or pumping out all water met with in excavation or which may accumulate in the excavation during the progress of the work either, by percolation, seepage, springs, rain or any other cause and diverting surface flow if any, by earthen bunds or by other means. The bunds shall be removed as soon as the work is completed.

Unless specially provided as a separate item of contract, pumping of water from foundation pit, trenches etc shall be carried out by the contractor at his own cost and he shall arrange for required numbers of dewatering pumping sets for the above work. He shall take precaution to prevent any damage to the foundation trenches, concrete or masonry or any adjacent structure. The excavation shall be kept free from water by the contractor (1) during inspection and measurement (2) When concrete and/or masonry work are in progress and till the construction work reaches above the natural water level and (3) till the Engineer in charge considers that the mortar is sufficiently set. The rate shall be paid for cum. of excavation.

Stripping Loose Rock

All loose boulders, semi-detached rocks (along with earthy stuff which might move therewith) not directly in the excavation but so close to the area to be excavated as to be liable, in the opinion of the Engineer in charge, to fall or otherwise endanger the workmen, equipment, or the work, etc., shall be stripped off and removed away from the area of the excavation. The method used shall be such as not to shatter or render unstable or unsafe the portion, which was originally sound and safe.

Any material not requiring removal as contemplated in the work, but which, in the opinion of the Engineer in charge, is likely to become loose or unstable later, shall also be promptly and satisfactorily removed as directed. The cost of such stripping will be paid for at the unit rates accepted for the class of materials in question.

Excavation in Rock : Blasting

with Gun Power:

Blasting operations shall be carried out with the prior permission and in the presence of the Engineer in charge or his authorized representative and during fixed time hours of

the day. All safety precautions such as providing safety nylon netting etc. shall be carried out as per instructions of the Engineer in charge.

Red danger flags shall be prominently displayed and all the people, except those who have actually to light the fuse must be away to a safe distance, not less than 200 meters.

All fuses shall be cut to the length required before being inserted into the holes.

The number of charges to be fired and the actual number of shots heard shall be compared and the person responsible must satisfy himself by examination that all the charges have exploded before work people are permitted to approach the scene. The withdrawal of a charge which has not exploded shall under no circumstances be permitted, but the tamping and charge shall be flooded with water and the hole marked in a distinguishing manner. The next hole to be fired shall be at a distance of about 500mm from the old hole and fired in the usual way.

The contractor or any of his competent authorized person shall be in charge of the blasting operations and shall be held responsible for strictly observing the safety rules, particularly applicable to blasting operations, in addition to other safety rules.

In blasting rocks with dynamite, the following general principles shall be observed.

In general, the following diameter of drills shall be used for different depth of boreholes: From 1 – 2 metre : 25 mm diameter

From 2 – 3 metres : 37 – 50 mm diameter

From 3 – 4.75 metres : 50 – 60 mm diameter

The borehole should generally be not more than 1.3m deep and the distance apart should be from one and half to twice the depth. Cracks and fissures in the rock to be blasted shall be carefully studied to ascertain the best portion forth the boreholes. Charge shall always be placed in a round piece of rock, if possible not nearer than 30mm from the crack.

Rules for blasting with dynamite and other high explosives

The person - in- charge must show that he is thoroughly acquainted with all blasting operations and that he understands the rules herewith laid down. He will be held responsible for any accident that may occur.
Boreholes must be of such sizes that the cartridge can easily pass down them. The position of all holes to be drilled must be marked out with white paint and the person – in – charge must take particular note of these positions.

The drilling operation being finished, the person – in – charge must make a second inspection and satisfy himself that the boreholes marked out by him have been drilled. The person – in – charge must prepare all charges necessary for boreholes.

Only ten holes may be loaded and fixed at one time and the charges should be fixed simultaneously as far as practicable. Boreholes must be thoroughly cleared before a cartridge is inserted.

The loading is to be done by the person – in – charge himself and the position of the charge holes carefully noted by him. Wooden tamping rods only to be used in charging holes (not pointed but cylindrical throughout, one cartridge at a time must be inserted and gently pressed with the tamping rod.

Immediately before firing blast, due warning must be given and the person – in – charge must see that all the labourers have retired to safety.

The safety fuse of the charged holes are to be lighted in the presence of the person – in – charge, who must see that the fuses of the holes charged have properly ignited. After the blast, the person – in – charge must carefully inspect the work and satisfy himself that all the charges have exploded.

Misfires:

Misfires are a source of great danger, if it is suspected that part of the blast failed to fire or is delayed; allow sufficient time to elapse before entering the danger zone. When fuse and blasting caps are used, a safe time, at least of an hour should be allowed.

None of the drillers are to work near this hole until the two following separations have been done by the person – in – charge.

(a) The person – in – charge should very carefully extract the tamping with a wooden scrapper and withdraw the fuse with the primer and detonator attached, after which a fresh primer and detonator with fuse should be placed in this hole and fired or.

The hole may be cleared of 300mm of tamping and the direction then ascertained by placing a stick in the hole. Another hole may then be drilled 150mm away and parallel to it, the hole to be then charged and fired. The person – in – charge shall also at once report to the Engineer in charge – in charge all cases of misfire, that cause of the same and what steps have been taken in connection herewith.

Precautions against misfire:

The safety fuse should be cut in an oblique direction with a knife.

All saw dust must be cleared from the inside of the detonator this can be done by blowing down the detonator and tapping the open end. No instrument shall be inserted into the detonator for this purpose.

After inserting the fuse in the detonator, it shall be fixed by means of nippers.

If there is water present, or if the boreholes be damp, the junction of the fuse and detonator must be made water tight by means of grease, white or lead.

The detonator should be inserted into the cartridge, so that about one third of the copper tube is left exposed outside the explosives. The safety fuse outside the detonator should be necessarily tied in position in the cartridge. Water proof fuse only to be used in the damp boreholes, or when water is present in the bore-holes.

If a misfire has been found to be due to defective fuse detonator or dynamite, the whole quantity or box from which the defective article was used shall be rejected.

Storage of materials for blasting shall be as per regulations/stipulations of the concerned authorities.

It shall be the contractor‟s responsibilities to arrange proper storage of explosives and obtain required permission from concerned authorities. No separate payment will be made for the above.

The refilling will generally refer to refilling of trenches up to ground level with excavated stuff. Filling

materials shall be from excavated stuff.

Excavated stuff to be used shall be cleared of all rubbish, large size stones, brick bats etc. Big clods shall be broken down to a size of 50 mm or less.

REFILLING, BACK FILLING & SITE GRARDING

Scope

This specification covers the general requirements of filling in foundation, trenches, pits and plinth with murrum or selected soil in layers of specified thickness & depth including watering, ramming and consolidating etc. as directed by the Engineer in charge and all operations covered within the intent and purpose of this specification.

Applicable Codes

For Indian Standard Codes, please refer Clause 1.12. In all cases, the latest revision of the codes shall be referred to.

General

All fill material will be subject to the Engineer's approval. If any material is rejected by the Engineer, the Contractor shall remove the same forthwith from the site at no extra cost to the Owner. Surplus fill material shall be deposited/ disposed off as directed by the Engineer in charge after the fill work is completed.

No earth fill shall commence until surface water discharges and streams have been properly intercepted or otherwise dealt with as directed by the Engineer in charge.

Filling Material

To the extent available, selected surplus soils from excavated materials shall be used as backfill. Fill material shall be free from clods, salts, sulphates, 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 murum or earth to fill up the voids and the mixture used for filling.

If any selected fill material is required to be borrowed, the Contractor shall make arrangements for bringing such material from outside borrow pits. The material and source shall be subject to prior approval of the Engineer. The approved borrow pit area shall be cleared of all bushes, roots of trees, plants, rubbish, etc. top soil containing salts/ sulphate and other foreign material shall be removed. The materials so removed shall be burnt or disposed off as directed by the Engineer. The Contractor shall make necessary access roads to borrow areas and maintain the same, if such access road does not exist, at his cost.

Filling with excavated earth shall be done in regular horizontal layers each not exceeding 20 cm in depth. All lumps and clods exceeding 8 cm in any direction shall be broken. Each layer shall be watered and consolidated with steel rammer or half (½) tonne roller. Where specified, every third and top most layer shall also be consolidated with power roller of minimum 8 tonnes. Wherever depth of filling exceeds 1.5 metres, vibratory power roller shall be used to consolidate the filing unless otherwise directed by Engineer. The Contractor shall make good all subsidence and shrinkage in earth fillings, embankments, traverses, etc. during execution and till the completion of work unless otherwise specified.

Filling In Pits and Trenches around Foundations of Structures, Walls

As soon as the work in foundations has been accepted and measured, the spaces around the foundations, structures, pits, trenches, etc. shall be cleared of all debris, and filled with earth in layers not exceeding 15 cm., each layer being watered, rammed and properly consolidated, before the succeeding one is laid. Each layer shall be consolidated to the satisfaction of the Engineer. Earth shall be rammed with approved mechanical compaction machines. Usually no manual compaction shall be allowed unless the Engineer is satisfied that in some cases manual compaction by tampers cannot be avoided. The final backfill surface shall be trimmed and levelled to proper profile as directed by the Engineer or indicated on the drawings.

Filling in Trenches

Filling in trenches for pipes and drains shall be commenced as soon as the joints of pipes and drains have been 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.

Where the trenches are excavated in soil, the filling from the bottom of the trench to the level of the centre line of the pipe shall be done by hand compaction with selected approved earth in layers not exceeding 8 cm, backfilling above the level of the centre line of the pipe shall be done with selected earth by hand compaction or other approved means in layers not exceeding 15 cm.

In case of excavation of trenches in rock, the filling upto a level 30 cm above the top of the pipe shall be done with fine materials, such as earth, murrum etc. The filling up of the level of the centre line of the pipe shall be done by hand compaction in layers not exceeding 8 cm whereas the filling above the centre line of the pipe shall be done by hand compaction or approved means in layers not exceeding 15 cm. The filling from a level 30 cm above the top of the pipe to the top of the trench shall be done by hand or other approved mechanical methods with broken rock filling of size not exceeding 15 cm mixed with fine material as available to fill up the voids.

Filling of the trenches shall be carried simultaneously on both sides of the pipe to avoid unequal pressure on the pipe.

General Site grading

Site grading shall be carried out as indicated in the drawings and as directed by the Engineer in charge. Excavation shall be carried out as specified in the specification. Filling and compaction shall be carried out as Indian standard codal provision.IS:2720

If no compaction is called for, the fill may be deposited to the full height in one operation and levelled. If the fill has to be compacted, it shall be placed in layers not exceeding 225 mm and levelled uniformly and compacted before the next layer is deposited.

To ensure that the fill has been compacted as specified, field and laboratory tests shall be carried out by the contractor at his cost. Field compaction test shall be carried out at different stages of filling and also after the fill to the entire height has been completed. This shall hold good for embankments as well. The Contractor shall protect the earth fill from being washed away by rain damaged in any other way. Should any slip occur, the contractor shall remove the affected material and make good the slip at his cost. The fill shall be carried out to such dimensions and levels as indicated on the drawings after the stipulated compaction. The fill will be considered as incomplete if the desired compaction has not been obtained. If specifically permitted by the Engineer, compaction can be obtained by allowing loaded trucks conveying fill or other material to ply over the fill area. Even if such a method is permitted, it will be for the Contractor to demonstrate that the desired/ specified compaction has been obtained. In order that the fill may be reasonably uniform throughout, the material should be dumped in place

in approximately uniform layers. Traffic over the fill shall then be so routed to compact the area uniformly throughout.

If so specified, the rock as obtained from excavation may be used for filling and levelling to indicate grades without further breaking. In such an event, filling shall be done in layers not exceeding 50 cms approximately. After rock filling to the approximate level, indicated above has been carried out, the void in the rocks shall be filled with finer materials such as earth, broken stone, etc. and the area flooded so that the finer materials fill up the voids. Care shall be taken to ensure that the finer fill material does not get washed out. Over the layer so filled, a 100 mm thick mixed layer of broken material and earth shall be laid and consolidation carried out by a 12 tonne roller. No less than twelve passes of the roller shall be accepted before subsequent similar operations are taken up.

Field Density

The compaction, only where so called for, in the schedule of quantities/ items shall comply with the specified (Standard Proctor/ Modified Proctor) density at moisture content differing not more than 4 percent from the optimum moisture content. The CONTRACTOR shall demonstrate adequately at his cost, by field and laboratory tests that the specified density has been obtained.

Measurement and Payment

All excavation shall be measured net. Dimensions for purpose of payment shall be reckoned on the horizontal area of the excavation at the base for foundations of the walls, columns, footings, tanks, rafts or other foundations/ structures to be built, multiplied by the mean depth from the surface of the ground in accordance with the drawings. Excavation in side slopes will not be paid for. The CONTRACTOR may make such allowance in his rates to provide for excavation in side slopes keeping in mind the nature of the soil and safety or excavation.

Backfilling as per specification the sides of foundations of columns, footings, structures, walls, tanks, rafts, trenches, etc. with excavated material will not be paid for separately. It shall be clearly understood that the rate quoted for excavation including backfilling shall include stacking of excavated material as directed, excavation/ packing of selected stacked material, conveying it to the place of final backfill, compaction etc. as specified. Payment for fill inside trenches, plinth or similar filling with selected excavated material will be made for only compaction as specified/ directed. Cost of all other operations shall be deemed to have been covered in the rate quoted for excavation. The plinth ground levels shall be surveyed before hand for this purpose. If no compaction is specified/ desired, such filling will not be separately paid for. In such an event the fill shall be levelled/ finished to the profile as directed at no extra cost.

Backfilling, plinth filling, etc. with borrowed earth will be paid for at rates quoted. The quoted rate shall include all operations such as clearing, excavation, lead and

transport, fill, compaction, etc. as specified. Actual quantity of consolidated filling or actual quantity or excavation in the borrow pits (less such top soil which has been excavated and not used for filling) whichever is less shall be measured and paid for in cubic meters. The lead, lift etc. shall be as indicated in the schedule of quantities.

Actual quantity of consolidated sand filling shall be measured and paid in cubic meter.

IV. REMOVAL OF EXCAVATED STUFF

Removal of Excavated Stuff and lying within project area limit as directed by Engineer in charge etc complete.

After refilling the pipe / chamber trenches, sides of recharge pits, drain & foundation sides by the excavated stuff/ barrow area materials with 15cm thick layers, including ramming, watering and consolidating up to possible extent as specified in excavation & refilling item, the surplus stuff shall be disposed off as directed within the prescribed limits of Indore smart city limits as directed by the Engineer in charge-in charge.

After refilling surplus earth shall have to cart by the contractor with in ISDCL limit including loading transporting unloading spreading without any extra cost.

Mode of Measurement And Payment:

The rate shall be per Cubic Meter of truck-body bases.

V. RAIN WATER HARVESTING STRUCTURE COMPONENTS

BORE-HOLE:

Bored / Drilled wells are constructed using a rotary bucket auger or drill depending upon the depth. They are usually completed by perforating the casing or using a sand screen with continuous slot openings.

During the test hole drilling, a lithologic or formation log shall be prepared. Soil and rock samples are taken at various depths and the type of geologic material is recorded. This help in identifying the zones with the best potential recharge depth. This allows more of the rainwater to be recharged to the deeper aquifer. The depth shall be as specified by the Engineer-in-charge.

Drilling of Bore Well - Aligning to correct location, drilling for BORE HOLE in all kind of soil, sand, clay murrum, soft rock, hard rock and hard murrum, boulders etc with mechanical means excluding 300mm dia shallow well (CS) casing pipe conforming to IS 12818-2010, filling the gap between casing and slotted U-PVC (150mm dia) pipe with course sand for required depths as directed by Engineer in charge in Charge.
Diameter of the bore well pipes & casing pipes may vary after the design computation as per recharge rate of the ground strata.
Bore drilling suitable for 150mm Dia PVC Casing Pipe for RWH; Maximum Depth varying from 0.0m to 60.0m.

Verticality of Wells

Wells must be perfectly vertical; a simple method is to use plumb disk. Two disks made out of 3mm thick steel plate are connected together by a rod of 25mm diameter and 3 m long tightened with the help of nuts at the ends. Some holes are punched in plates to facilitate immersion in water.

A knob is fixed on the top nut to which a thin steel wire is attached. The disk is suspended into the tube by the wire passing over a pulley on a tripod. When the disk is lowered into the pipe, the wire is exactly in the centre of pipe. When the disks are further lowered down and if the well pipe is not truly vertical, the wire will deviate from the centre and that shall be indicated at the top of pipe. Absolute verticality is ideal but a deviation of 100mm per 30 meters of boring is generally acceptable where submersible pumps are not to be installed.

SCREENING AND CASING PIPES FOR RECHARGE STRUCTURES:

General: Screen or slotted pipes are used for casing in ground water section to allow water to enter inside the well. These pipes can also be used to provide soak ways for the storm water/rain water to infiltrate back in to surrounding ground. Thus we can recharge the ground water resource and avoid the wastage of rain water in the form of runoff. Theses percolation pipes can also used in roof top water harvesting in the form of percolation pit, to recharge the ground water.

The above pipes shall conform to the standards as specified in IS: 12818:2010 Unplasticized polyvinyl chloride (PVC-U) Screen and casing pipes for Bore/tube-wells – specifications.

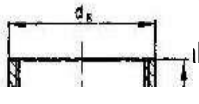
The material from which the pipe is produced shall consist substantially of unplasticized polyvinyl chloride to which may be added only those additives that are needed to facilitate production of sound and durable pipe of good surface finish and mechanical strength under conditions of use and as directed by Engineer in charge-in-charge.

Pipe shall be designated by its type, whether ribbed medium well screen (RMS), ribbed deep well screen (RDS), plain medium well screen (PDS) or casing (CS or CM or CD) followed by its nominal diameter DN, slot width and length of the pipe.

The diameters and wall thickness shall be conforming to IS: 12818 latest code.

The screening and casing pipes shall have male threads at spigot end and female threads at the socket end. The threads shall be in accordance with IS 554 and IS 12818.

The Tests shall be in accordance with IS 12818 for its Visual Appearance, Internal Diameter, Density, and Resistance to external blows, Tensile strength and other tests as indicated by Engineer in charge-in-charge.

The scale  ll be as per test

specified in Cl.10 of IS: 12818. All pipes in a single consignment of the same type (screen or casing), same size and manufactured under essentially similar conditions, shall constitute a lot.

FILTERING UNITS:

FRP Filter Drum :Providing & fixing FRP (FIBER REINFORCED POLYMER) based micro filter drum/ extension of 700mm dia CGWB/GRIHA approved pure rain filter"s diameter Accordance to the design , drawing and specification complete as per entire satisfaction of Engineer-in-Charge including all leads, lifting at any height ,loading ,unloading all taxes ,charges ,all I&M ,T&P as complete job .Nothing extra will be paid whatsoever the case may be.

Stainless Steel Bucket inside FRP Drum : Providing and fixing of CGWB/GRIHA approved Pure Rain Filter 700mm dia with 300mm dia inlet and outlet to accumulate storm water having desilting suspended solid catcher made out of FRP with strainers steel 304 grade strainers, having steel bucket of 600micron capable of eliminating finer
particulate matter upto160mmicron filtration made of SS net with long fiber foam of 25mm thickness, green color, filtration capacity 40-80 kiloliters complete in accordance to the design, drawing and specification complete as per entire satisfaction of Engineer-in- Charge. Total depth of filter shall be 2000mm including two filter extension including all leads, lifting at any height
,loading ,unloading all taxes ,charges, all I&M ,T&P as complete job .Nothing extra will be paid whatsoever the case may be.

400 gsm Non-woven Geotextile : Provide and fixing of non-Woven Geotextile having thickness of 400 Gsm, Having minimum tear strength of 25 gsm ASTM d4533,wdith wise at least 215 ASTM D4533 having puncture strength of 1550 pulse as per ASTM D 4595 in two layer ,made out of long fibers to hold the modules and protect liner including cutting ,sizing, heat ,welding and punched for high porosity and proper percolation. Complete as per entire satisfaction of engineer in charge. including all leads, lifting at any height ,loading ,unloading all taxes ,charges
,all I&M ,T&P as complete job .Nothing extra will be paid whatsoever the case may be.

Charcoal : Supply and filling in plinth with charcoal layer under floors, including watering ramming consolidating and dressing complete

Sand : Supply and filling in plinth with good quality river sand under floors, including watering ramming consolidating and dressing complete

Broken stone aggregates: Supplying, filling, spreading & levelling stone aggregate 20mm nominal size in recharge pit, in reduced thickness, for all lead & lifts, all complete.

CO-POLYMER BASED RAIN WATER HARVESTING STRUCTURE:

Providing & Fixing of Co-polymer based rainwater harvesting structure including supply of cross wave of size 494 mm x 494 mm x220mm with minimum void ratio of 94.7% having a weight of
1.8 and spacers having size of 988 mm x 240 mm x 25 mm having a weight of 0.8 kg of approved make and arranging the same in as directed by the engineer -in-charge and in complete accordance to the design, drawings. The rates are inclusive of all necessary transportation, loading, unloading excise, vat control etc.as per entire satisfaction of Engineer -in-charge including all leads, lifting at any height ,loading ,unloading all taxes ,charges ,all I&M ,T&P as complete job .Nothing extra will be paid whatsoever the case may be.

FRP MANHOLE CHAMBER: Supply and installation of FRP based access Chambers, with appropriate duty/ loading conditions and each having of required size to have access in the tank complete in accordance to the design, drawings and specifications complete with all the necessary care.

BRICK CHAMBER BEFORE FILTERING UNIT

It is the initial filtering unit before the FRP & stainless steel filtering unit. It shall be decided based on the design requirements.

Excavation

This shall be done to dimensions and levels on the drawings.

Bed Concrete

Bed concrete shall be in 1:2:4 cement concrete, 100 mm thick for inspection chambers, 150 mm thick for depths upto 3 m and 300 mm thick for greater depths in case of chambers or as specified by the ENGINEER-IN-CHARGE..

Brick Chamber with RC slab

All manholes, chambers as specified shall be constructed in brick masonary in cement mortar 1:4 (1 cement : 4 coarse sand) or as specified in the schedule of Quantities with RCC top slab Cement concrete grade M-15 & foundation in cement concrete grade M-7.5.

Plaster

Inside walls chambers shall be plastered with 12mm thick cement plaster 1:3 mixed with waterproofing material and finished smooth with a floating coat of neat cement. External walls shall be plastered in CM 1:3 and sponge finished.

Vata

75 mm fillet shall be made with C.M. 1:3 all round the external joint between the bed concrete and brick masonry wall of chamber.

Benching

Channels and benching inside the inspection chambers shall be done in cement concrete 1:2:4, rendered smooth with neat cement. The channel provided shall be of semicircular shape of the same diameter as the diameter of the pipe drain with vertical walls. The depth of channel shall be equal to the pipe drain diameter and the P.C.C. benching top will have a slope of 1 in 12 from the side walls to the channel

Steps

Steps shall be provided wherever the depth of the chamber is more than1 m. Foot rest shall be C.I. rungs weighing 2.35kg. These shall be embedded 20 cm deep in 20 20 10 cm blocks of P.C.C. 1:3:6. The blocks with C.I. foot rest placed in its centre shall be cast in site along with masonry.

Footrest shall be placed 300 mm apart vertically and 375 mm horizontally in staggered fashion. First footrest shall be 450 mm below top. Footrest shall be painted with bituminous

paint and the portion embedded shall be painted with thick cement slurry before fixing. Or the other steps i.e encapsulated copolymer on MS.

Testing

Chamber after it is raised above highest expected subsoil water level in monsoon shall be tested for water tightness. The mouths of all pipes entering the chamber

shall be suitably plugged with brick masonry or wooden or any other type of plug. Chamber under test shall then be filled with water up to general subsoil water level and the level observed for one hour, it shall then be deemed as watertight. During testing the pit around shall be kept free of water and CONTRACTOR shall observe the places where leakage takes place and take steps to correct the same.

Measurement

Inspection chambers, gullies etc. shall be enumerated under relevant items in the schedule of quantities. Depth shall be measured from top the cover to the invert of channel. Depth shall be measured as an extra over the depth specified under enumerated item and paid per running meter under separate item following the main item. Weight and duty of gully gratings shall be specified in the item.

Rates

The rate shall include the cost of material and labour involved in all the operations from above up to specified depth in the item. Excavation and refilling is generally paid for separately under relevant item or excavation can be clubbed with the item of chambers, but in that case maximum depth will have to be specified in the item. If the duty of the cover in the item is changed during execution by the ENGINEER-IN-CHARGE-in-charge amount due to difference in weight of the cover shall be paid extra or deducted as the case may be.

MEASUREMENT AND PAYMENT FOR MAJOR ITEMS OF WORK

Payment for the rain water harvesting shall be on unit basis complete as per the drawings, specifications and directions of the Engineer in charge in charge.

VI. METHODOLOGY OF INSTALLING RAIN WATER HARVESTING STRUCTURE (COPOLYMER BASED RWH SYSTEM & FILTER)

Identification of Suitable Site for Recharge Pit with proper reconnaissance survey & as per the approval of Engineer in-charge.

Boring/drilling bore well work by DTH drilling machine/RR machine 300 mm diameter.

Lowering of Medium Well casing UPVC CM/RMS pipe 150 mm dia with MS/PVC Bail Plug and MS/PVC End Cap.Gravel packing around UPVC CM/RMS pipe 150 mm diameter.

Earthwork Excavation by Hydraulic Machine/Manual Labor for Recharge pit.

Preparation of proper base for structure.

Laying of 150mm thick broken Stone Aggregate of 20mm nominal Size/ Boulders on the prepared sub base of the pit.

Laying of 100 mm thick Good quality river sand layer above the broken stone layer.

Installation/laying of Non-Woven Geotextiles 400 GSM in Double layer.

Installation of Modular cross waves layer (Recycled Polypropylene made) up to the desired depth.

Laying of Spacers on top Layer for making monolithic/interlocking structure.

Wrapping & Welding of Non-Woven Geotextiles.

Providing and laying Good quality river sand layer of 50mm thick on top of Geotextile.

Excavation of Earth for Filter & Filter Chamber up to required depth.

Providing and laying CC 1: 5: 10 & 1: 2: 4 as base for fixing of pure rain filters.

Installation of pure rain filters FRP Based approved by GRIHA.

Construction of brick masonry silt chamber for the desired size.

Interconnection of UPVC Pipe with storm water drain and silt chamber, filter, cross wave structure.

Testing for actual percolation rate of recharge structure by emptying a Water Tanker . Refilling

of Excavated earth up to finished level.

Final dressing of sites.

Installation of informatory Sign Board.

TYPICAL ARRANGEMENT RWH STRUCTURE WITH CROSS WAVE TECHNOLOGY

TYPICAL SECTION OF CROSS WAVE POLYMERS

1.4 QUALITY CONTROL PLANS

The quality control plan shall list and define in sequential order all process control activities, inspection and tests proposed to be performed on the equipment/ material starting from component procurement and from testing stages to product dispatch. The quality control plan shall indicate and identify the applicable standards, detailed description with diagram the procedure, acceptance criteria, extent of check and record to be generated.

The contractor shall within fifteen (15) days of placement of order submit the following information to the ISCDL.

Descriptive list of the raw material as well as bought out accessories and the names of sub suppliers selected from those furnished along with the Specification. Type test certificates of the raw material and bought out accessories.

Quality Assurance Plan (QAP) with holds points for ISCDL"s inspection. The QAP and hold points shall be discussed between the ISCDL and the CONTRACTOR before the QAP is finalized.

1.5 INSPECTION

The inspection may be carried out by the ISCDL or his representative at any stage of manufacturing. The successful contractor shall grant free access to the ISCDL/ its representative/s at a reasonable notice when the work is in progress. Inspection and

acceptance of any equipment under this specification by the ISCDL shall not relieve the contractor of his obligation of furnishing equipment in accordance with the specification and shall not prevent subsequent rejection if the equipment is found to be defective.

The contractor shall keep the ISCDL informed in advance regarding the time of starting and progress of manufacture of all the equipment in its various stages so that arrangements could be made for stage inspection, if desired by ISCDL.

No material shall be dispatched from its point of manufacture unless the material has been satisfactorily inspected and tested and approved by ISCDL.

Contractor shall, during inspection/ at any stage as sought by ISCDL, will furnish test certificates for all equipment including bought out items as included in this bid. However, the ISCDL reserves the right to insist for witnessing the acceptance/routine testing of bought out items.

The contractor shall communicate to the ISCDL the details of all testing programme at least three (3) weeks in advance. ISCDL reserves the right to waive the inspection at any stage.

1.6 HAND-OVER OF THE SYSTEM DURING EXIT PERIOD

The contractor shall hand over to the ISCDL the following before the expiry of the contract or in the case of termination of contract by ISCDL with justifiable reason as specified elsewhere in the RFP:

Information relating to the current services rendered and technology and technical data relating to the performance of the services; Entire documentation relating to various components of the Project, any other data and confidential information related to the Project;

All other information (including but not limited to documents, records and agreements) relating to the products & services related to the project to enable ISCDL and its nominated agencies, or its replacing CONTRACTOR to carry out due diligence in order to transition the provision of the Project Services to ISCDL or its nominated agencies, or its replacing CONTRACTOR (as the case may be).

The duration of 60 working days after completion of the contract period shall be considered as handover/ exit period during which contractor shall give full access to its premises, records, data base and assets related to this project.

All the information as indicated above which is handed over to ISCDL should not be copied, sold or reused by contractor under any circumstances without any written approval from ISCDL.

During the exit period contractor shall not reduce any manpower or replace any manpower willfully as available on the day of issue of notice. In case the contractor reduce the manpower then ISCDL shall charge Rs. 1000/- per person per day as penalty for the remaining duration of the exit period.

1.7 Completion and Post Completion Activities

When completion is said to occur, when all erection/installation and commissioning of all Rain water harvesting structure works and minor civil works under the scope of the
Contractor are completed to the satisfaction of the Project Manager‟s Representative.

The Project Manager may inform the Contractor regarding deficiencies for rectification by the Contractor within a jointly agreed period before the pre-commissioning checks could be undertaken. Alternately the Project Manager, when the defects are of minor nature may undertake the pre-commissioning checks, permitting the Contractor to concurrently undertake rectification of such defects. Rectification of all defects, so notified by the Project Manager, to his satisfaction shall be a prerequisite to issue of Taking over Certificate.

1.8 Clause for Confidentiality

Bidders will ensure that they will not disclose any of the information which will be provided to them by the client / consultants relating to process, design method, construction, manufacturing operation, including methods, inventions, trade secrets, process know-how including but not limited to reports, computations/calculations, basic studies, concept notes, flow charts, sketches, drawings, specifications, data sheets, inspection and test reports, operation and maintenance manuals, process data, test data, performance data and all documentation there of including minutes of discussions and will maintain the confidentiality in all respect.

In the event that Bidder disclose or caused to be disclosed or disseminate, distribute or release such Information or other confidential information without the prior written consent of Client, Client shall be entitled to seek immediate injunctive relief and such other legal measures as deemed fit by client for safeguarding ISCDL"s interests.

PAYMENT SCHEDULE

Sr. No.	Description	% Of Payment to be Made
1	Supply of Material for Items (Co-Polymer Modules, Geotextiles, Filters, FRP Chambers) after receipt of invoice and shipping documents (negotiable bill of lading , a non-negotiable sea way bill ,an airway bill ,a railway consignment note ,a road consignment note , insurance certificate , Manufacturers or Suppliers warranty certificate.	70 % of the project cost (Against actual material received)
2	After Handing over the project.	15% of the project cost
3	After completion of 3 Year O & M	15% of the Project Cost

Annexure F

(See clause 3 of Section 2-ITB)

Procedure for participation in e-Tendering

1. Bidder should do Online Enrolment in this Portal using the option Click Here to Enroll available in the Home Page. Then the Digital Signature enrollment has to be done with the e-token, after logging into the portal. The e-token may be obtained from one of the authorized Certifying Authorities such as eMudhraCA/GNFC/IDRBT/MtnlTrustline/SafeScrpt/TCS.
2. Bidder then logs into the portal giving user id / password chosen during enrollment.
3. The e-token that is registered should be used by the bidder and should not be misused by others.
4. DSC once mapped to an account cannot be remapped to any other account. It can only be Inactivated.
5. The Bidders can update well in advance, the documents such as certificates, purchase order details etc., under My Documents option and these can be selected as per tender requirements and then attached along with bid documents during bid submission. This will ensure lesser upload of bid documents.
6. After downloading / getting the tender schedules, the Bidder should go through them carefully and then submit the documents as per the tender document, otherwise, the bid will be rejected.
7. The BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant coulmns, else the bidder is liable to be rejected for that tender. Bidders are allowed to enter the Bidder Name and Values only.
8. If there are any clarifications, this may be obtained online through the eProcurement Portal, or through the contact details given in the tender document. Bidder should take into account of the corrigendum published before submitting the bids online.
9. Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender schedule and they should be in PDF/XLS/RAR/DWF formats. If there is more than one document, they can be clubbed together.
10. Bidder should arrage for the EMD as specified in the tender. The original should be posted/couriered/given in person to the Tender Inviting Authority, within the bid submission date and time for the tender.
11. The bidder reads the terms and conditions and accepts the same to proceed further to submit the bids
12. The bidder has to submit the tender document(s) online well in advance before the prescribed time to avoid any delay or problem during the bid submission process.
13. There is no limit on the size of the file uploaded at the server end. However, the upload is decided on the Memory available at the Client System as well as the Network bandwidth available at the client side at that point of time. In order to reduce the file size, bidders are suggested to scan the documents in 75-100 DPI so that the clarity is maintained and also the size of file also gets reduced. This will help in quick uploading even at very low bandwidth speeds.
14. It is important to note that, the bidder has to Click on the Freeze Bid Button, to ensure that he/she completes the Bid Submission Process. Bids Which are not Frozen are considered as Incomplete/Invalid bids and are not considered for evaluation purposes.
15. In case of Offline payments, the details of the Earnest Money Deposit (EMD) document submitted physically to the Department and the scanned copies furnished at the time of bid submission online should be the same otherwise the Tender will be summarily rejected
16. The Tender Inviting Authority (TIA) will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.
17. The bidder may submit the bid documents online mode only, through this portal. Offline documents will not be handled through this system.
18. At the time of freezing the bid, the eProcurement system will give a successful bid up-dation message after uploading all the bid documents submitted and then a bid summary will be shown with the bid no, date & time of submission of the bid with all other relevant details. The documents submitted by the bidders will be digitally signed using the e-token of the bidder and then submitted.
19. After the bid submission, the bid summary has to be printed and kept as an acknowledgement as a token of the submission of the bid. The bid summary will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening event.
20. Successful bid submission from the system means, the bids as uploaded by the bidder is received and stored in the system. System does not certify for its correctness.
21. The bidder should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected

22. The time that is displayed from the server clock at the top of the tender Portal, will be valid for all actions of requesting bid submission, bid opening etc., in the e-Procurement portal. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission.
23. All the data being entered by the bidders would be encrypted at the client end, and the software uses PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission and not viewable by any one until the time of bid opening. Overall, the submitted bid documents become readable only after the tender opening by the authorized individual.
24. During transmission of bid document, the confidentiality of the bids is maintained since the data is transferred over secured Socket Layer (SSL) with 256 bit encryption technology. Data encryption of sensitive fields is also done.
25. The bidders are requested to submit the bids through online eProcurement system to the TIA well before the bid submission end date and time (as per Server System Clock).

Annexure G

(See clause 4 of Section 2-ITB)

JOINT VENTURE (J.V.)

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 indicate precisely 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 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:

DETAILS OF PARTICIPATION IN THE JOINT VENTURE FIRM

PARTICIPATION DETAILS	A' (Lead Partner)	'FIRM 'B'	FIRM 'C'
Financial			
Name of the Banker(s)			
Planning			
Construction Equipment			
Key Personnel			
Execution of Work (Give details on contribution of each			

7. The partners of J.V. should satisfy the qualification criteria as below,
   a. The Lead Partner must meet at least 50% requirement of technical and financial eligibility criteria required for the bid.
   b. The other partner must meet at least 25% requirement of technical and financial eligibility criteria required for the bid.
   c. The lead partner and the other partners should together meet 100% of all the eligibility criteria required for the bid.
8. For meeting the minimum qualification criteria of experience of similar nature work, every partner can have experience of different works as defined in similar nature works and together should have the experience of all types of works described in similar nature works.

Annexure H

(See clause 12 of Section 2 ITB & clause 4 of GCC)

ORGANIZATIONAL DETAILS

(To be enclosed with technical proposal)

S.No.	Particulars	Details
1.	Registration No. issued by centralized registration system of Govt. of MP 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	
4.	Entity of Organization Individual/ Proprietary Firm/ Partnership Firm (Registered under Partnership Act)/ Limited Company (Registered under the Companies Act 2013)/ Corporation	
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.	Mobile Number	
15.	E-mail Address	
16.	GST no.	

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

Date:

Annexure I

(See clause 14 of Section 2 of ITB)

Envelope B, Technical Proposal

Technical Proposal shall comprise the following documents:

S. No.	Particulars to be submitted	Format
1.	Financial and Physical Experience	(Format: I-1)
2.	Annual Turnover	(Format: I-2)
3.	List of technical personnel for the key positions	(Format: I-3)
4.	List of Key equipment/ machine/s quality control labs	(Format: I-4)
5.	List of Key equipment/ Machines for Construction Work.	(Format: I-5)

Note:

1. Technical Proposal should be uploaded duly page numbered and indexed.
2. Technical Proposal should be uploaded otherwise will not be considered

Annexure I (Format: I - 1)

(See clause 14 of Section 2 of ITB

FINANCIAL & PHYSICAL EXPERIENCE DETAILS

Annexure I (Format: I - 2)

(See clause 14 of Section 2 of ITB

ANNUAL TURN OVER

Average Annual Financial Turnover for the works to be provided in the following format for the last 3 financial years;

Financial Information			
Financial Year	2016-17	2017-18	2018-19
Annual Turnover (in INR Crore)			
AVERAGE ANNUAL TURNOVER			

Note:

i. Annual turnover of company should be certified by chartered accountant.

ii. Audited balance sheet including all related notes and income statements for the above financial years to be enclosed.

iii. TDS/ GST Certificates related to experience as per RFP conditions.

Annexure I (Format: I - 3)

(See clause 14 of Section 2 of ITB

LIST OF TECHNICAL PERSONNEL FOR THE KEY POSITIONS

Annexure I (Format: I - 4)

(See clause 14 of Section 2 of ITB

LIST OF KEY EQUIPMENT/ MACHINES FOR QUALITY CONTROL LABS

Annexure I (Format: I - 5)

(See clause 14 of Section 2 of ITB

LIST OF EQUIPMENTS / MACHINES FOR CONSTRUCTION WORK

Annexure J

(See clause 14 of Section 2 of ITB)

FINANCIAL BID

(TO BE CONTAINED IN ENVELOPE C)

NAME OF WORK: _____

(Name of the work as appearing in the bid for the work)

I/We do hereby BID to execution of the above work within the time specified at the rate (In figures) _____(In words)_____percent below / above 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 am/are fully aware of all the difficulties and conditions likely to affect carrying out the work. I/We have fully acquainted myself/ourselves about 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 effecting 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 Executive Director, Indore Smart City Development Limited, Indore 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.*
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 Executive Director, Indore Smart City Development Limited, Indore dated the_____day of_____20_ _

_____

Signature of Officer by whom accepted

Financial Proposal/ Price Bid Format
(to be submitted online only)

Each Bidder must fill each unlocked cell. Rest of the calculations shall be done automatically.

Note:

1. Bidder must quote prices without GST. GST shall be paid extra as per applicable rates.

Annexure K

(See clause 15 of Section 2 of ITB)

MATERIALS TO BE ISSUED BY THE DEPARTMENT

S.No	Name of material	Rate (Issue rate)	Unit	Remarks

DELETED

Annexure L

No. _____

(See clause 21 of Section 2 of ITB)
Dated: _____

LETTER OF ACCEPTANCE (LOA)

M/s. _____

(Name and address of the contractor)

Subject: (Name of the work as appearing in the bid for the work)

Dear Sir (s),

Your bid for the work mentioned above has been accepted on behalf of the (Name of ULB), at your bided offer 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). The performance security shall be in the shape of term deposit receipt/ bank guarantee of any nationalized / schedule commercial bank.

b. Sign the contract agreement.

Please note that the time allowed for carrying out the work as entered in the bid is _____ months including/ excluding rainy season, shall be reckoned from the date of signing the contract agreement.

Signing the contract agreement shall be reckoned 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 for taking the possession of site and necessary instructions to start the work.

Chief Executive Officer,
Indore Smart City Development, Indore

Annexure M

(See clause 22 of Section 2 of 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] (herein after 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 WHREREAS 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 till issue of physical completion certificate.

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 [GCC]

Table of Clauses of GCC

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 Executive Officer"** means the executive officer as defined under the relevant section of the article of association;

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 Sheet"** 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 **"Drawings"** means drawings including calculations and other information provided or approved by the Engineer-in-Charge.

1.13 **"Department"** means Indore Smart City Development Limited, Indore as the case may be.

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 contract data sheet.

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 **"Executive Director"** means the executive director of the Board as appointed under the provision of the article of association;

1.19 **"Government**" means Government of Madhya Pradesh.

1.20 **"In Writing"** means communicated in written form and delivered against receipt.

1.21 **"Material**" means all supplies including consumables used by the Contractor for incorporation in the work.

1.22 **"Stipulated date of completion**" means the date on which the Contractor is required to complete the work. The stipulated date 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 14 days after the signing of agreement for the work. However, the employer may extend this time limit by another 14 days, as and when required.

1.25 **"Sub-Contractor"** means a person or corporate body who has a Contract (duly authorized by the employer) with the Contractor 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, Tenderer/ 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
3. Conditions of Contract:
    i. Part I General Conditions of Contract and Contract Data; with all Annexures
    ii. Part II Special Conditions of Contract.
4. Specifications
5. Drawings
6. Bill of Quantities
7. Technical and Financial Bid
8. Agreement
9. Any other document (s), as specified.

3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent on the address or contact details given by the Contractor in [Annexure H of ITB]. The address and contract details for communication with the Employer/Engineer shall be as per the details given in Contract Data Sheet. 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. Sub-contracting

Subcontracting shall be permitted for contracts value more than amount specified in the Contract Data with following conditions.

a. The Contractor may subcontract up to **30 percent** of the contract price, only with and after the approval of the Employer in writing but will not assign the Contract. Subcontracting shall not alter the Contractor's obligations.

b. The following shall not form part of the sub-contracting:

i. hiring of labour through a labour contractor,

ii. hiring of plant & machinery

c. The sub-contractor will have to be registered in the appropriate category in the centralized registration system for contractors of the GoMP.

6. Personnel

6.1 The Contractor shall employ for the work and routine maintenance the technical personnel as provided in the Annexure I-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 attributed 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 radio activity, except ass may be attributed to the Contractor's use of such munitions, explosives, radiation or radio activity, and

v. 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 of 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.

8.2 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, notwithstanding the fact that designs/drawings or other documents have been approved by the department.

9. Liability for Accidents to Person

The contractor shall be deemed to have indemnified and saved harmless the Government and/or the employer, 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 implement and generally of all means used for the fulfilment of this contract whether such means may or may not approved of 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 issue of dispute can be raised after 45 days of its 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 disputes.

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 The contractor shall have to continue execution of the works with due diligence notwithstanding pendency of a dispute before any authority or forum.

12.6 Tribunal constituted under Madhya Pradesh Madhyastham Adhikaran Adhiniyam, 1983.

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 in the Works 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 If the Contractor desires an extension of time for completion of the work on the ground of his having been unavoidably hindered in its execution or on any other grounds, he shall apply, in writing, to the Engineer-in-charge, on account of which he desires such extension. Engineer-in- charge shall forward the aforesaid application to the competent authority as prescribed.

14.2 The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause- 15 of this agreement.

14.3 In case of the work already in progress, the contractor shall proceed with the execution of the works, including maintenance thereof, pending receipt of the decision of the competent authority as aforesaid with all due diligence.

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 leviable 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 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.

17.4 Ten percent of the mandatory tests prescribed under the specifications shall be got carried out through Laboratories accredited by National Accreditation Board of Laboratories (NABL) by the Engineer in Charge and the cost of the such testing shall be deducted from the payments due to Contractor.

18. Correction of Defects noticed during the Defect Liability Period

18.1 The defect liability period of work in the contract shall be 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 Defects 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, Drawings etc.

19.1 The Engineer in charge shall have power to make any alterations, omissions or additions to or substitutions for 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 Employer, 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 agree 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 Engineer in charge shall be conclusive as to such proportion.

20. Extra items

20.1 All such items which are not in the priced BOQ shall be treated as extra items.

21. Payments

22.1 If at any time after the commencement of the work, the Government, 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 shall 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 contractor 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 sales tax and other levies, duties, cess, toll, taxes of Central and State Governments, local bodies and authorities. But the rates shall be excluding excise duty exemption on pipes as per Norms. **GST shall be paid extra as applicable.**

25.2 The liability, if any, on account of quarry fees, royalties, octroi and any other taxes and duties in respect of materials actually consumed on public work, shall be borne by the Contractor. 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 measurement 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 judgmental 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 sub paragraph (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 value of the work accepted on final measurements, less advance payments and penalty as indicated in the Contract Data. The amount so arrived at shall be determined by the Engineer-in-charge and shall be final and binding on both the parties.

28.2 Payment on termination 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 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 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 deposit shall be refunded on completion of defect liability period.

31. Price Adjustment

31.1 Applicability

1. Price adjustment shall be applicable only provided for in the contract data.
2. The price adjustment clause shall apply the works executed from the date of singing of the agreement until the end of the intended completion date or extensions granted for reasons attributed to the Employer by Engineer The contractor shall not be entitled any benefit arising from the price adjustment clause for extension in the contract period reasons attributed to the contractor. In the Force Majeure event price escalation clause shall apply.

31.2 Procedure

1. Contract price shall be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants in accordance with following and procedures and as per formula given in the contract data.
2. The price adjustable shall be determined from the formula given in the contract data.
3. Following expression and meaning are assigned to done during each quarter:
   R= Total value of work during the quarter include the amount of secured advance granted, if any, during the secured advance recovered, if any during 3 the quarter, less value of department, if any during the quarter. Weightages of various components they shall be as per the Contract Data.

31.3 To the extent that full compensation any rise or fall in costs to the contractor is not covered by the provisions of this or clauses in the contact, the unit rates and prices included in the contract shall be deemed amounts to cover the contingency of such other rise or fall in costs.

31.4 The index relevant to any quarter, for which such compensation is paid, shall be the arithmetical average of the indices relevant of the calendar month.

31.5 For the purpose of clarity it is pointed out that the adjustment may be either positive or negative, i.e. if the price adjustment is in favor the same shall be recovered from the sums payable to the Contractor.

32. Mobilization and Construction Machinery

32.1 Payment of advances shall be applicable if provided in Contract Data.

32.2 If applicable, the Engineer bearing advance payment to the contractor of the against provision by the contractor of an unconditional Bank in nationalized/Scheduled banks, in the name as stated in the in the advance payment. The Guarantee shall remain effective been repaid, but the amount of the guarantee shall be progressively repaid by the contractor.

32.3 The rate of interest shall be as per Contract data.

32.4 The construction machinery advance, if applicable, shall be limited to 80% of the cost of new construction machinery.

32.5 The advance 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 Contract data.

33.2 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 nationalized/ scheduled banks, 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.

33.3 The rate of interest chargeable shall be as per Contract Data.

33.4 The construction machinery advance, if applicable, shall be limited to 80% of the cost of construction machinery and admissible only for new construction machinery.

33.5 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.

34. Payment Certificates

The payment to the contractor will be as per payment terms as mentioned in clause 21 above:

a. The contractor shall submit to the engineer monthly statement 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 there 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 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 nay sum is found to have been overpaid in respect of any work done by the contractor under the contract or nay 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

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 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/bye laws/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 of 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.

42. Jurisdiction

This contract has been entered into the State of Madhya Pradesh and its validity and legal effect shall be subjected to the exclusive jurisdiction of the courts in Indore or of the courts at the place where this agreement is entered into. No other jurisdiction shall be applicable.

43. Deleted

44. Limitation of Liability

44.1 Except in cases of gross negligence or wilful misconduct,

(a) the Contractor and the Employer shall not be liable to the other party for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Contractor to pay liquidated damages to the Employer and

(b) the aggregate liability of the Contractor to the Employer, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment, or to any obligation of the Contractor to indemnify the Employer with respect to patent infringement.

44.2 All payments to subcontractor shall be made by contractor. Contractor shall indemnify Employer from any legal issues related to delay in payment or not making any payment to sub- vendor/sub-contractor.

45. Patent Indemnity

45.1 The Contractor shall, subject to the Employer's compliance with GCC Sub-Clause 45.2, indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, which the Employer may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract by reason of:

(a) the installation of the Facilities by the Contractor or the use of the Facilities in the country where the Site is located; and

(b) the sale of the products produced by the Facilities in any country.

Such indemnity shall not cover any use of the Facilities or any part thereof other than for the purpose indicated by or to be reasonably inferred from the Contract, any infringement resulting from the use of the Facilities or any part thereof, or any products produced thereby in association or combination with any other equipment, plant or materials not supplied by the Contractor, pursuant to the Contract Agreement.

45.2 If any proceedings are brought or any claim is made against the Employer arising out of the matters referred to in GCC Sub-Clause 45.1, the Employer shall promptly give the Contractor a notice thereof, and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim. If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty- eight (28) day period, the Employer shall make no admission that may be prejudicial to the defense of any such proceedings or claim.

The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

45.3 The Employer shall indemnify and hold harmless the Contractor and its employees, officers and Subcontractors from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney"s fees and expenses, which the Contractor may suffer as a result of any infringement or alleged infringement of any patent, utility model, registered design, trademark, copyright or other intellectual property right registered or otherwise existing at the date of the Contract arising out of or in connection with any design, data, drawing, specification, or other documents or materials provided or designed by or on behalf of the Employer.

46. Copy Right

46.1 The copyright in all drawings, documents and other materials containing data and information furnished to the Employer by the Contractor herein shall remain vested in the Contractor or, if they are furnished to the Employer directly or through the Contractor by any third party, including supplies of materials, the copyright in such materials shall remain vested in such third party.

The Employer shall however be free to reproduce all drawings, documents and other material furnished to the Employer for the purpose of the Contract including, if required, for operation and maintenance.

46.2 The copyright in all drawings, documents and other materials containing data and information furnished to the Contractor by the Employer herein shall remain vested in the Employer.

47. Confidential Information

47.1 The Employer and the Contractor shall keep confidential and shall not, without the written consent of the other party hereto, divulge to any third party any documents, data or other information furnished directly or indirectly by the other party hereto in connection with the Contract, whether such information has been furnished prior to, during or following termination of the Contract. Notwithstanding the above, the Contractor may furnish to its Subcontractor(s) such documents, data and other information it receives from the Employer to the extent required for the Subcontractor(s) to perform its work under the Contract, in which event the Contractor shall obtain from such Subcontractor(s) an undertaking of confidentiality similar to that imposed on the Contractor under this GCC Clause 47.

47.2 The Employer shall not use such documents, data and other information received from the Contractor for any purpose other than the operation and maintenance of the Facilities. Similarly, the Contractor shall not use such documents, data and other information received from the Employer for any purpose other than the design, procurement of Plant and Equipment, construction or such other work and services as are required for the performance of the Contract.

47.3 The obligation of a party under GCC Sub-Clauses 47.1 and 47.2 above, however, shall not apply to that information which

(a) now or hereafter enters the public domain through no fault of that party

(b) can be proven to have been possessed by that party at the time of disclosure and which was not previously obtained, directly or indirectly, from the other party hereto

(c) otherwise lawfully becomes available to that party from a third party that has no obligation of confidentiality.

47.4 The above provisions of this GCC Clause 47 shall not in any way modify any undertaking of confidentiality given by either of the parties hereto prior to the date of the Contract in respect of the Facilities or any part thereof.

47.5 The provisions of this GCC Clause 47 shall survive termination, for whatever reason, of the Contract.

48. Loss of or Damage to Property; Accident or Injury to Workers; Indemnification

48.1 The Contractor shall indemnify and hold harmless the Employer and its employees and officers from and against any and all suits, actions or administrative proceedings, claims, demands, losses, damages, costs, and expenses of whatsoever nature, including attorney's fees and expenses, in respect of the death or injury of any person or loss of or damage to any property (other than the Facilities whether accepted or not), arising in connection with the supply and installation of the Facilities and by reason of the negligence of the Contractor or its Subcontractors, or their employees, officers or agents, except any injury, death or property damage caused by the negligence of the Employer, its contractors, employees, officers or agents.

48.2 If any proceedings are brought or any claim is made against the Employer that might subject the Contractor to liability under GCC Sub-Clause 48.1, the Employer shall promptly give the Contractor a notice thereof and the Contractor may at its own expense and in the Employer's name conduct such proceedings or claim and any negotiations for the settlement of any such proceedings or claim.

If the Contractor fails to notify the Employer within twenty-eight (28) days after receipt of such notice that it intends to conduct any such proceedings or claim, then the Employer shall be free to conduct the same on its own behalf. Unless the Contractor has so failed to notify the Employer within the twenty-eight (28) day period, the Employer shall make no admission that may be prejudicial to the defense of any such proceedings or claim. The Employer shall, at the Contractor's request, afford all available assistance to the Contractor in conducting such proceedings or claim, and shall be reimbursed by the Contractor for all reasonable expenses incurred in so doing.

48.3 Notwithstanding anything in this Contract to the contrary, it is agreed that neither the Contractor nor the Employer shall be liable to the other party for loss of production, loss of profit, loss of use or any other indirect or consequential damages.

[End of GCC]

CONTRACT DATA SHEET

Clause Reference	Particulars	Data
1.14	Employer	Indore Smart City Development Limited
1.15	Engineer	Engineer as notified by employer
1.16	Engineer in Charge	Executive Engineer of ISCDL
1.22	Stipulated period of completion	**01 Year + 03 Years of O & M period**
3	Language & Law of Contract	English and Indian Contract Act 1872
4	Address & contact details of the Contractor	As per Annexure H
	Address & contact details of the Employer/Engineer-phone, Fax, e-mail.	-
5	Sub-contracting permitted for contract value	Permitted as per terms of ISCDL
6	Technical Personnel to be provided by the contractor	As per Annexure I (Format I-3)
	Penalty, if required Technical personal not employed	As per Annexure I (Format I-3)
10	Specifications	As per Annexure E
	Drawings	As per Annexure N
12	Competent authority for deciding dispute under Dispute resolution system	Chief Executive Office, ISCDL, Indore
	Appellate Authority for deciding dispute under Dispute resolution system	Executive Director, ISCDL, Indore
13	Period of submission of updated construction program	-
14	Competent authority for granting time permission	Executive Director, ISCDL, Indore
15	Milestones laid down for the contract	Yes
	If yes, details of milestone	As per Annexure O
	Liquidated damages	As per Annexure P
17	List of equipment for lab	As per Annexure Q
	Time to establish	……
	Penalty for not establishing lab	Rs. per month of delay
18	Defects Liability Period for Entire Work.	3 years of O & M period after physical completion of the work.
21	Competent authority for determining the rate	Executive Director, ISCDL, Indore
27	Any other condition for breach of contract	-
28	Penalty	Penalty shall be recovered from a. Security deposit as per clause 30 of General Conditions of Contract; and b. Liquidated damages imposed as per clause 15 from Performance Security (Guarantee) including Additional Performance Security (Guarantee), if any, as per clause 29 of General Conditions of Contract, whichever is higher.

Clause Reference	Particulars	Data
29	Performance guarantee (Security) shall be valid up to	Till completion of physical period as per Clause 35.1.
30	Security deposit to be deducted from each running bill	At the rate of 5%
	Maximum limit of deduction of Security Deposit	5% of final contract amount
31	Price adjustment formula and procedure to calculate	As per Annexure R
31.1 (1)	Price adjustment shall be applicable	Not Applicable
31.2 (4)	Weightages of Component in the work	
32	32.1 Mobilization Advance applicable	Not Applicable
	32.2 If yes, unconditional Bank Guarantee	As per Annexure S
	32.3 If Yes Rate of Interest	10% annual simple interest
	32.4 If Yes, Type and Amount that can be paid	Mobilization Advance – Not more than 5% of Contract Amount
	32.5 If Yes, Recovery of Payment	Recovery of Mobilization advance shall commence when 10% of the contract amount is executed and recovery of total advance shall be done on pro-rata basis and shall be completed by the time work equivalent to 80% of the Contract Amount is executed. In addition to the recovery of principal amount, recovery of interest shall be carried out as calculated on the outstanding amount of principal at the close of each month. The interest shall be accrued from the day of payment of advance and the recovery of interest shall commence when 10% of the contract amount is executed and recovery of total advance shall be done on pro-rata basis and shall be completed by the time work equivalent to 80% of the Contract Amount is executed.
33	33.1 Secured Advance Payable	No Secured Advance Payable
	33.2 If Yes, Unconditional Bank Guarantee	In the format prescribed in Annexure T.
	33.2 If Yes, Amount of Secured Advance	
	33.3 If Yes, Conditions for Secured Advance	
	33.4 If Yes, Recovery of Secured Advance	-
35	Completion Certificate – after physical completion of work	As per Annexure U
	Final Completion Certificate – after final payment on completion of the work.	As per Annexure V
39	Salient features of some of the major labour laws that are applicable	As per Annexure W

Annexure N

(See clause 10 of Section 3 of GCC)

DRAWINGS

Drawings Separately attached

Annexure O

(See clause 13 of Section 3 of GCC)

DETAILS OF MILESTONE

Annexure P

(See clause 10 of Section 3 of GCC)

PENALTY FOR DELAY

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 PENALTY shall be levied on the contractor at the rate of 1 % per week of delay limited to maximum of 10% of contract price.

The decision of Executive Director, ISCDL shall be final and binding upon both the parties.

Annexure Q

(See clause 10 of Section 3 of GCC)

LIST OF EQUIPMENT FOR QUALITY CONTROL LAB

Annexure R

(See clause 10 of Section 3 of GCC)

PRICE ADJUSTMENT

NOT APPLICABLE

Annexure S

(See clause 32 of Section 3 of GCC)

BANK GUARANTEE FORM FOR MOBILIZATION ADVANCE

NOT APPLICABLE

Annexure T

(See clause 33 of Section 3 of GCC)

BANK GUARANTEE FORM FOR SECURED ADVANCE
INUNDENTURE FOR SECURED ADVANCES

NOT APPLICABLE

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 MB 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

Engineer

_____

_____

Annexure V

(See clause 35 of section 3 -GCC)

Final Completion Certificate

Name of Work: _____

Agreement No._____Date: _____

Name of Agency: _____

Used MB 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: _____

Engineer in Charge _____
Indore Smart City Development Limited, Indore

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 a scheduled employment. Construction of buildings, roads, 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 it 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, 100, or 50). The Act provides for 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 the 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-work place 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 4
Bill of Quantities

(Attached)

SECTION 5

AGREEMENT

This agreement, made on the day of _____ between (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 Contractor execute _____ (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:

Binding Signature of Employer ……

Binding Signature of Contractor ……