

कॉलेज ऑफ वोकेशनल स्टडीज  
(दिल्ली विश्वविद्यालय)

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(University of Delhi)

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New Delhi-110017, India  
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संदर्भ संख्या

Ref. No. CVS/2019/624

दिनांक

28.05.2019

Dated

**E-TENDER**

FOR

**Construction of Rain Water Harvesting Pit and Setting up of Automated STP Plant at College**

DATE & TIME OF ISSUE OF TENDER DOCUMENT (downloaded from website)	28.05.2019 from 6.00 p.m.
LAST DATE & TIME FOR SUBMISSION OF TENDER DOCUMENT	19.06.2019 up to 11.00 a.m.
DATE & TIME FOR OPENING OF TENDER DOCUMENT – (TECHNICAL/FINANCIAL BID)	20.06.2019 at 11.00 a.m.

- The e-tender Form can be filled up from the e-procurement portal.

The tender shall be accepted under two Bid System. The interested Bidders are advised to submit Technical & Financial bids **through e-portal of e-procurement website (<https://www.eprocure.gov.in>)**.

Principal



**COLLEGE OF VOCATIONAL STUDIES,**

**DELHI UNIVERSITY**

<b>Tender No.</b>	<b>CVS/2019/624</b>
<b>Project Name</b>	<b>Construction of Rain Water Harvesting Pit and Setting up of Automated STP Plant at College of Vocational Studies, Delhi University.</b>



**COLLEGE OF VOCATIONAL STUDIES**

**DELHI UNIVERSITY**

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## SECTION I -PROJECT INFORMATION

Tender No.	:	CVS/2019/624
Project	:	Construction of Rain Water Harvesting System and Installation of Automated STP Plant,
Client	:	College of Vocational Studies University of Delhi.
Site Address	:	College of Vocational Studies University of Delhi Triveni Sheikh Sarai New Delhi 110017
Estimated Build Up Area	:	NA
Earnest money Deposit	:	Rs. 1,80,000/-
Tender Document Fee	:	Rs. 2000/-
Last Date& Time for Bidding	:	19.06.2019 (11:00 AM)
EMD	:	Rs. 1,80,000/-
Tender Doc Fee	;	Rs. 2000/-
Location of Submission of Hard Copy Tender	:	College of Vocational Studies University of Delhi Triveni Sheikh Sarai New Delhi 110017
Existing Conditions of Site	:	To be examined by the Contractor

## SECTION – II

### EOI

#### College of Vocational Studies

#### University of Delhi Triveni Sheikh Sarai New Delhi 110017

Sealed Item rate tenders in two bid system (Technical Bid and Financial Bid) are invited by the Principal, College of Vocational Studies for Civil works pertaining to the construction of Rain Water Harvesting System and Installation of Automated STP Plant, from reputed building contractors who have executed similar works:, having completed three similar works costing not less than Rs 36,00,000/- or two similar works costing not less than Rs. 54,00,000/- or one similar work costing not less than Rs. 72,00,000/- from the cost of work in the last three years for any Govt/Semi-Govt Departments/ Central/State Governments/ PSU's only, Certificate to be signed by officer not below the rank of Executive Engineer.

Similar work means "Construction of Rain Water Harvesting System for a Campus and Installation of Automated STP Plant". Similar works may or may not be under one single job of work and should have been completed in last 3 years. Similar works should be in the name of bidder itself, any work done on sub contracting or back to back basis will not accepted.

Tenderers shall furnish proof of satisfactory completion of such work issued by the client along with their full company profile including list of T&P, technical staff, PAN, TIN, solvency certificate and 3 year ITR of company. Technical bid shall be opened first and after evaluation and finalization of technical bid, the list of eligible contractors shall be prepared and financial bid of the short-listed contractors shall be opened. The college authorities reserves the right to carry- out site inspection of similar works carried out by the contractors before opening of financial bids

Contractor should be have an average Financial turnover from Construction works of Rs 44.85 Lacs (50% of Estimated cost of works) in last three financial years ending 31<sup>st</sup> March 2018. Company should be having a positive net worth and should not have incurred loss more than 2 consecutive years.

Tender documents can be downloaded from the portal "www.eprocure.gov.in" or can be obtained from the office of Principal College of Vocational Studies University of Delhi Triveni Sheikh Sarai New Delhi 110017 from 28.05.2019 to 19.06.2019 during working hours on payment of Rs. 2000/- by DD in favor of Principal College of Vocational Studies

Earnest Money Deposit	Rs. 1,80,000/- ( Rupees One lac eighty thousand only) in a separate envelope
Last Date of Sale of Tenders	19.06.2019 at 1100 hrs
Last date of Clarifications on queries if any	07.06.2019 at 1100 hrs
Last date of Submission of Tenders	19.06.2019 at 1100 hrs
Date of Opening of Technical Bid	20.06.2019 at 1100 hrs
Date of Opening of Financial Bid	To be notified later

Note: Tender Document can also be downloaded from the college website [www.cvs.edu](http://www.cvs.edu) and Delhi University Website [www.du.ac.in](http://www.du.ac.in) Downloaded tender shall accompany a DD of Rs. 2000/- drawn in favor of Principal College of Vocational Studies, as cost of tender (Non-refundable). Downloaded tender documents shall be spiral bound before submission. Loose, Stapled or incomplete bid documents will be rejected.

**SECTION III**  
**NOTICE INVITING TENDER**

- 1) Sealed Tenders are invited by the Principal, College of Vocational Studies for Civil works pertaining to construction of Rain Water Harvesting System and Installation of Automated STP Plant at College Campus.
- 2) The Tender shall be submitted in the prescribed Tender form (ONLINE).
- 3) The works are required to be completed within a period of Five months from the date of commencement.
- 4) The date of commencement shall be from the 10<sup>th</sup> day after the date on which the Architect/Authorized person as appointed by CVS issues written orders to commence the work or from the date of handing over of the site whichever is later.
- 5) The work shall be carried out in accordance with the phasing plan approved by the college authorities to avoid disturbance to the normal working of the College. The contractor will prepare and submit a Phasing Plan with Bar Chart of all construction activities with targeted dates of completion for all the construction activities and get it approved from the college authorities
- 6) CONTRACTORS are advised to inspect and examine the site and the surroundings and satisfy themselves before submitting their Tender as to the nature of the ground and sub- soil (as far as practicable), the form and the nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain necessary information as to the risks, contingencies and other circumstances which may influence or affect their Tender. CONTRACTOR shall be deemed to have full knowledge of the site, whether he inspects it or not and no extra charge consequent to any misunderstanding or otherwise shall be allowed.
- 7) Submissions of the Tender by the CONTRACTOR implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and local conditions and other factors bearing on the execution of the works.
- 8) A CONTRACTOR should quote in figures as well as in words rate(s). The amount for each item should be worked out and the requisite totals given. Special care shall be taken to write rates in figures as well as in words and the amount in figures only in such a way that interpolation is not possible. The total amount shall be written both in figures and in words. In case of figures the words "Rs." should be written before the figure of rupees and the words "paise" should be written at the end. Unless the rate is in whole rupees and followed by the word "only" it should invariably be up to two places of decimals.
- 9) All rates shall be quoted on the Tender form only.

- 10) The Tender shall be accompanied by earnest money deposit of Rs. 1,80,000/- (Rupees One Lac Eighty Thousand Only ), in the form of a demand draft or bank guarantee in favor of the Principal, College of Vocational Studies, New Delhi.
- 11) On acceptance of the Tender, contractor shall furnish a performance guarantee in the form of an F.D.R or bank guarantee of 5% of the accepted Tender cost in favor of Principal, College of Vocational Studies, New Delhi before issue of letter to start the work.
- 12) The CONTRACTOR, whose Tender is accepted, shall permit the Principal, College of Vocational Studies, New Delhi at the time of making any payments to him for works done under the contract to deduct towards security deposit @10%.

Further the Earnest money deposited will be returned to the successful bidder after the submission of Performance Guarantee and Performance Guarantee will be released after the successful completion of work up to the satisfaction of Architect/ Authorized person as appointed by CVS. 50% of the Security amount deducted will be released after the completion work up to the satisfaction of Architect/ Authorized person as appointed by CVS and remaining 50% of the amount will be released after the completion of defect liability period of one year. No interest of any sort will be paid upon the above amounts.

- 13) College of Vocational Studies, New Delhi will return the earnest money where applicable, to every unsuccessful CONTRACTOR without any interest, after the award of work to the successful bidder.
- 14) A CONTRACTOR shall submit the Tender which satisfies each and every condition laid down in this notice, failing which the Tender shall stand to be rejected.
- 15) College of Vocational Studies, New Delhi does not bind itself to accept the lowest or any tender or to give any reasons for their decision.
- 16) College of Vocational Studies, New Delhi reserves the right of accepting the whole or any part of the Tender and CONTRACTOR shall be bound to perform the same at his quoted rates and reserves to itself the authority to reject any or all of the tenders received without assigning any reason.
- 17) Sales tax , VAT, purchase tax, turnover tax, GST or any other tax applicable in respect of this contract shall be payable by the Contractor and College of Vocational Studies will not entertain any claim whatsoever in respect of the same.
- 18) T.D.S. for VAT/WCT etc. as applicable to union territory of Delhi shall be deducted from the payments to be made to the Contractor and tax deduction certificate shall be issued by College of Vocational Studies, New Delhi as per govt. guidelines

- 19) This notice of Tender shall form part of the contract documents.



Contractor:  
Duly authorized to sign the On  
Behalf of M/s  
.....  
.....  
.....

Owner:  
For and on behalf of  
College of Vocational Studies, New  
Delhi

Signature.....

Date.....

Email.....

Phone.....

Postal Address.....

.....

.....

Authorized Signatory

## SECTION IV GENERAL CONDITIONS OF CONTRACT

Definitions: the contract document consists of the agreement, the special and general conditions of the contract, specifications and bills of quantities including all modifications and the contract drawings prepared by the Architect from time to time

- CVS: College of Vocational Studies New Delhi
- The site: shall mean the site of contract work at College of Vocational Studies, New Delhi.
- Sub-Contractor: includes those who have a direct contract with the Contractor.
- Notice: written notice shall be deemed to have been served if delivered in person to a member of the Contractors firm.
- Owner: College of Vocational Studies, New Delhi.
- Work: the term “work” includes both labour and material of the Contractor/Sub-Contractor required for execution of work
- Time limits: time limits or 5 months stated in the contract are essence of the contract.
- Law: law of the place of work shall govern the construction under this contract.
- Virtual completion: date of virtual completion is the date when the construction is sufficiently completed in accordance with the contract documents, including modifications, if any.
- Contract documents: shall consist of the following
  - a) Articles of agreement
  - b) General and special conditions of contract
  - c) Technical specifications
  - d) Bills of quantities
  - e) Tender Document

### TYPE OF CONTRACT

It is an item rate contract. The Contractor shall be paid for the actual quantity and quality of work done, as measured at site on the rates quoted by him, on the basis of a payment certificate issued by the Architect/ Authorized person as appointed by CVS.

## SCHEDULE OF QUANTITIES

Schedules of quantities given in the contract are provisional and are meant to indicate the intent of the work and to provide a uniform basis for the contract. The Owner reserves the right to increase or decrease any of the quantities or to totally omit any of them. Contractor shall be bound to carry out the same without claiming any extras.

## CONTRACT DRAWINGS

- In general, drawings shall indicate dimension, position & type of construction.
- Specifications shall indicate the qualities, methods, and bill of quantities shall indicate the quantum and rates. Any work indicated in drawings and not mentioned in the specifications or vice versa shall be furnished as fully set forth in both.
- Contractor shall not deviate from the drawings and Architects interpretation of the drawings shall be final and without appeal.
- Errors/inconsistencies discovered in the drawings shall be instantly brought to the notice of the Architect for interpretation and correction, if any.
- All drawings are the property of the Architect and shall not be used on any other project.
- Bar bending schedule, if requested by the Architect/Authorized person as appointed by CVS shall be furnished to him prior to fabrication.

## ARCHITECTS INSTRUCTIONS

If within seven days of receipt of written instructions from the Architect, requiring compliance with an instruction the Contractor does not comply hence-with, then the Owner may get the work executed through another agency at the risk and cost of the Contractor.

## SCOPE OF WORK OF CONTRACTOR

The scope of work to be carried out by the CONTRACTOR shall also include the following:

- a) Setting out of the works in respect of position, level dimensions, alignments, etc. including establishment of bench marks, survey reference points, etc.
- b) Clearance of the site.
- c) Site leveling /terracing within the limits as shown in the drawings or as directed by the Authorized person as appointed by CVS.
- d) Disposal of debris, excavated materials, etc. as per the instructions of the Authorized person as appointed by CVS
- e) Testing of water, soil and concrete. And any other test as required by CPWD norms
- f) Pumping out rain water/underground water from foundations, excavations and

drainage of surface water from work site without extra cost.

- g) All scaffolding, shorting, centering, shuttering works, etc.
- h) Running and maintenance of all construction plants and equipment, tools and tackles, etc.
- i) All temporary /enabling works such as approach road to the site, water supply, drainage and sewerage, power supply including diesel generator set, temporary offices, stores, construction yard, canteens, toilet blocks, labour camp, fencing, etc.
- j) Protection and maintenance of trees, shrubs, green and other surfaces as instructed by the Authorized person as appointed by CVS.
- k) Any other work required in connection with the execution and successful completion of the contract work.

The cost of all the above mentioned works shall be deemed to be included in the rates for various items of work although such inclusion may not be specifically spelt out.

Whether specified elsewhere in the Agreement or not, the CONTRACTOR shall provide all materials (including steel and cement unless specifically spelt out in the agreement otherwise), labors of every description, energy and water and all tools, tackles, plant and transport necessary for proper execution of the work to the entire satisfaction of the OWNER.

#### SAMPLES AND SHOP DRAWINGS

The Contractor shall submit samples of materials and shop drawings required by the Architect with promptness within a week.

#### PROGRESS CHART

In order to achieve the completion time as stated above, the CONTRACTOR shall submit to the OWNER within 2 (two) weeks from the effective date of Agreement a detailed Bar chart/PERT Network showing all the activities including mobilization, site clearance, procurement of major construction materials like steel and cement, excavation, foundation work, sanitary and water supply work, etc. The list of activities for which the Bar chart/PERT network has been worked out and their commencement, duration and completion shall be subject to the approval of the OWNER

#### ACCESS FOR ARCHITECT / Authorized person as appointed by CVS TO THE WORKS

The Architect / Authorized person as appointed by CVS and their representative shall have access, at all reasonable times, to the work and workshops of the Contractor.

### ARCHITECTS STATUS AND DECISIONS

The Architect shall be Owner's representative during the construction period. He shall periodically visit the site to familiarize himself generally with the progress and the quality of work and to determine, in general if the work is proceeding in accordance with the contract documents. The Architect shall not be required to make exhaustive or continuous on-site inspections to check the quality and quantity of the work, and shall not be responsible for the Contractors failure to carry out the construction work in accordance with the contract documents. During his site inspections the Architect shall inform the Owner about progress of work, defects and deficiencies if any.

The Architect may in his absolute discretion from time to time, issue further drawings, details, written instructions, written decisions and written explanations in regard to: -

- Variation or modification of the design
- Quality or quantity of work, addition/alteration/omissions and substitutions of any work  
Any discrepancy and divergence between drawings and specifications.
- Removal and re-erection of any works executed by the Contractor
- Dismissal of any persons employed on the site, who in the opinion of the Architect is not fit for the job.
- Opening up for inspection any work-covered up
- Amending and making good any defects under defects liability period
- Removal from site, any materials brought by the Contractor, which in the opinion of the Architect is not up to the desired standard.
- Delay and extension of time Postponement of any work

### AUTHORIZED PERSON AS APPOINTED BY CVS

Authorized person as appointed by cvs shall mean the person approved by and appointed and paid by the Owner and acting under the directions of the Principal CVS/ Building Committee CVS.

### CONTRACTORS FIELD ORGANIZATION AND EQUIPMENT

- The Contractor shall employ qualified and competent licensed Electricians on the site.
- Contractor shall provide and install all necessary hoists, ladders, scaffoldings, tools, tackles, plants and machinery necessary for execution of the works
- Contractor shall provide and maintain simple water tight office accommodation at site  
Contractor shall make his own security arrangements at site and keep a 24hours

Watchman Contractor shall provide sanitary convenience for site staff and labour to keep the site clean A telephone line at site to be maintained and paid by the Contractor

- Guardrails shall be provided by the Contractor for safety of labour and general public at the site of works.

#### TAXES

Sales-tax/VAT/ GST, purchase tax, turnover tax or any other tax applicable in respect of this contract shall be payable by the Contractor and College of Vocational Studies will not entertain any claim whatsoever in respect of the same

#### STATUTORY OBLIGATIONS

The Contractor shall comply with and give all notices required by any Govt. authority and instrument, rule or order made under an act of parliament or state assembly or any regulation or bye-law of the local body, relating to the work and indemnify the Owner against any such liability arising out of noncompliance of the law.

By way of illustration of various Acts/statutory compliances as stated above, the following Acts as amended from time to time shall be complied with by the CONTRACTOR:

- a) Employee's Provident Fund Act 1952
- b) Contract Labour Act (Regulations and Abolition 1970)
- c) Minimum Wages Act 1948
- d) Payment of Wages Act 1936
- e) Workmen Compensation Act 1923
- f) Factories Act 1948
- g) Apprenticeship Act 1961

#### SUB CONTRACTOR

NOT APPLICABLE.

#### MEASUREMENT OF WORK

Unless otherwise specified, measurement of work shall be carried for the works actually executed. The measurements for the purpose of preparing Bills will be taken jointly by the CONTRACTOR's representative and the Architect/ Authorized person as appointed by CVS. In measurement of work as stated above, the CONTRACTOR shall certify that the work has been carried out strictly as per the drawings, specifications and

item of work in terms of the agreement.

In the event of any dispute with regard to the measurement of the work executed, the decision of the OWNER shall be final and binding on the CONTRACTOR

In the case of site measurements, should the CONTRACTOR not attend or neglect or fail to send his representative for taking joint measurements, the measurements taken by the Architect/Authorized person as appointed by CVS shall be deemed to be the correct measurement of work and shall be binding on the CONTRACTOR

#### REJECTION

If the Contract work or any portion thereof, at any time, is found to be defective or fails to fulfill the requirements of the agreement, the Architect/Authorized person as appointed by CVS shall give the CONTRACTOR notice in writing setting-forth particulars of such defects or failure and the CONTRACTOR shall forthwith make good the defects or replace or alter the same to make it comply with the requirements of the agreement.

Any materials, equipment, etc. brought to the site and found to be not in accordance with the agreement, shall be rejected by the Architect/Authorized person as appointed by CVS and the CONTRACTOR shall remove the materials from the site within the period specified by the Authorized person as appointed by CVS.

The CONTRACTOR shall not be entitled to any extension of time or extra cost for rejection as per above

#### CERTIFICATES OF PAYMENTS

Architect shall issue an interim certificate of payment stating the amount due to the Contractor from the Owner and the Contractor shall be entitled to payment thereof within a period of two week after issue of the certificate. From the total amount, certified deduction shall be made towards payments already made, security deposit, TDS etc. as applicable to Delhi or any other tax applicable at the time of making payment.

All running payments shall be regarded as payment by way of advance against final payment only and not as payment for the work completed till the date of final payment. The running payment made shall not preclude the liability of the CONTRACTOR to finally complete the work strictly in accordance with the specifications and drawings, if required by reconstructing faulty work

#### CLAIM FOR EXTRA

In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor will submit rates, supported by rate analysis, for 1

the work and the Authorized person as appointed by CVS shall within one month of the receipt of the rates supported by rate analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

#### DEDUCTION FOR UNCORRECTED WORK

If the Architect/Authorized person as appointed by CVS deems it in-expedient to correct work damaged or not done in accordance with the contract, an equitable deduction from the contract price shall be made thereof.

#### FLUCTUATIONS

The Contractor shall not claim any extras for fluctuation of price and the contract price shall not be subjected to any rise or fall in prices.

#### POSSESSION BEFORE VIRTUAL COMPLETION

If the Owner, with the consent of the Contractor takes possession of part of the building for handing over to the finishing Contractor, such part of the building shall not be deemed to be virtually completed. Virtual completion of such part would occur only on completion of the last part of the structure.

#### TIME EXTENSION

Upon it becoming reasonably apparent that the progress of the work is delayed, the Contractor shall forthwith give written notice of the cause of delay to the Architect/Authorized person as appointed by CVS, to enable the Architect and Owner to take a proper decision in the matter.

#### INSPECTION AND TEST

- i. The CONTRACTOR shall ensure inspection and test of all materials and work at his cost through his Authorized person as appointed by CVS and other technical staff either at site or through any approved laboratory.
- ii. The CONTRACTOR shall ensure proper supervision and inspection during the progress of work at site.
- iii. All materials and work, whether at the site or in the CONTRACTOR's /Sub-Contractor's premises shall be subject to inspection and test by the Authorized person as appointed by CVS. The CONTRACTOR/ his Sub-Contractor shall provide all



facilities free of cost to the Authorized person as appointed by CVS including all labor, materials, tools, tackles, instruments, appliances, etc. to enable the Authorized person as appointed by CVS to carry out inspection and/or test.

- iv. All test certificates shall be subject to certification by the Authorized person as appointed by CVS.
- v. The CONTRACTOR shall submit to the Authorized person as appointed by CVS three copies of all inspection/ test certificates.
- vi. The CONTRACTOR shall not be entitled to any claim for extra time or cost due to any delay in carrying out inspection and testing or re-inspection and re-testing if so decided by the Authorized person as appointed by CVS.
- vii. The CONTRACTOR shall take adequate steps to rectify the defects or to replace such materials and work which have failed during inspection /testing

#### RESPONISBILITY OF COMPLETION

Any work, supplies or services which might have not been specifically mentioned in the specifications, schedule of items or drawings but are necessary for entire completion of the contract work shall be executed / provided/ rendered by the CONTRACTOR without any Extra cost and within the time schedule specified. Rates quoted shall be deemed to include such elements of labor and materials necessary to complete the items of work in all respects.

#### DAMAGES FOR NON-COMPLETION

If the Contractor fails to complete the works by the date specified or within any extended time granted to him, the Contractor shall allow the Owner to deduct a sum calculated at the agreed liquidated damages, from the money due to him for the period the work remained incomplete, subject to a maximum amount of 10% of the Contract Value.

#### LIQUIDATED DAMAGES FOR DELAY

If the CONTRACTOR fails to complete the work/item (s) of work in all respects and hand over the same to the OWNER within the time stipulated the CONTRACTOR, without prejudice to any other right or remedy of the OWNER on account of such breach, be liable to pay the OWNER liquidated damages at the rate of 1% (one percent) of the total contract price for delay of every week or part thereof.

The above provisions shall not apply in cases of delay for which the CONTRACTOR is entitled to extension of completion time

#### VIRTUAL COMPLETION CERTIFICATE AND DEFECTS LIABILITY PERIOD

When in opinion of the Architect the works are practically completed, he shall in consultation with Principal CVS will issue a certificate to that effect, that date will be taken as the date of virtual completion.

The Authorized person as appointed by CVS shall prepare a schedule of defects, not later than 14 days after the expiry of the defects liability period. The Contractor shall within a reasonable period of time after receipt of schedule of defects shall rectify the same, failing which the Architect/Authorized person as appointed by CVS will make suitable deductions from the contract sum.

#### MAINTENANCE GUARANTEE / DEFECTS LIABILITY PERIOD

Maintenance Guarantee period will be 12 months from the actual date of completion and handing over to the OWNER.

- a) The CONTRACTOR guarantees that within the maintenance guarantee period, the contract work shall not show any signs of defects, cracks, settlements, disfigurations, shrinkage, leakage, dampness or any other defects.
- b) The CONTRACTOR shall maintain and satisfactorily execute, at his own cost, all such works of repair, amendment, re-construction, rectification, replacement and any other work to make good the faulty work as stated in Article (a) during the maintenance guarantee period.
- c) The CONTRACTOR shall, if required by the Authorized person as appointed by CVS, search for the causes of any defects, imperfection or fault under the direction of the Authorized person as appointed by CVS. The cost of such search shall be borne by the CONTRACTOR.
- d) At intervals specified by the Authorized person as appointed by CVS the CONTRACTOR, along with the Authorized person as appointed by CVS, shall inspect the contract work to satisfy him that no defects have cropped up in the contract work. Should there be any signs of defects, the CONTRACTOR shall take immediate steps to rectify the same, failing which; the Authorized person as appointed by CVS may get the defects rectified at the risk and cost of the CONTRACTOR.
- e) At the end of the maintenance guarantee period, the CONTRACTOR, along with the Authorized person as appointed by CVS, shall carry out final inspection of the contract work to prove that no defects had appeared in the contract work or that all defects which appeared in the contract work have been rectified to the entire satisfaction of the Authorized person as appointed by CVS. If during the final inspection it is found that the defects still remain in the contract work, the period of maintenance guarantee shall be

extended at the discretion of the Authorized person as appointed by CVS and the CONTRACTOR shall be liable to make good the defects and be responsible for the maintenance of the work till the defects have been fully rectified.

- f) Upon successful completion of the maintenance guarantee period the OWNER shall issue final acceptance certificate to the CONTRACTOR

#### PAYMENT WITH HELD

The Architect/ Authorized person as appointed by CVS may withhold or on account of subsequently discovered evidence nullify the whole or part of any certificate to such an extent as may be necessary in his reasonable opinion to protect the Owner from loss, for defective work, non- payment to Subcontractors, or other claims connected to this work.

#### INJURY TO PERSONS

The Contractor shall indemnify the Owner against any liability, loss, claim or proceedings whatsoever arising under any statutory or common law in respect of personal injury to or the death of any person, whomsoever arising out of or in the course of or caused by carrying out the work.

#### INSURANCE

Without prejudice to his ability to indemnify the Owner, the Contractor and his Subcontractors shall maintain such insurance as are necessary to cover the liability of the Contractor and the sub-Contractors.

#### INSURANCE AGAINST FIRE

The Contractor shall in the joint name of the Owner and the Contractor, insure against loss or damage due to fire, earthquakes and riots.

#### COORDINATION OF WORK

Contractor shall extend complete coordination to other agencies i.e. air-conditioning, firefighting and interiors working on the same site.

#### LABOUR

Contractor shall not employ child labour under 18 years of age and if female workers are employed he should make provision for safeguarding the small children to keep them clear of the site. All labour shall wear safety helmets and shoes to protect them from injury.

### SAFETY

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expense arrange for the safety provisions as per C.P.W.D. Safety Code framed from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangement and provide necessary facilities as aforesaid, he shall be liable to pay a penalty of Rs.200/- for each default and in addition, the Authorized person as appointed by CVS shall be at liberty to make arrangement and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

### ANTIQUITIES

All fossils and other objects of interest or value, which may be found on the site or in excavating the same during progress of the work, shall become a property of the Owner. The Contractor shall carefully take out and preserve all such objects and hand them over to the Owner, through the Architect.

### GUARANTEE

Besides guarantees required elsewhere, the Contractor shall guarantee the works in general for one year after completion of defects liability period.

### TREES AND SHRUBS

The Contractor shall protect trees and shrubs designated by the Owner/Architect/ Authorized person as appointed by CVS from damage during the course of work

### PERFORMANCE GUARANTEE

In addition to the Security Deposit the Contractor shall furnish a performance guarantee in the form of a Bank Guarantee to the tune of Five percent (5%) of the cost of the tender amount, which will be kept valid up to 12 months after completion of the work.

### ARBITRATION

In case of dispute, the difference of opinion on any matter pertaining to the works, the decision of the Principal CVS shall be final and binding on the contractors. If the contractor is not satisfied with the decision, within 28 days a notice to this effect will be sent to the Principal CVS in writing. The matter will then be referred to sole arbitrator appointed by the Principal CVS in this regard.

### LIQUIDATION

If the CONTRACTOR commences to be wound up, not being a member's voluntary winding up for the purpose of amalgamation or reconstruction, or carries on his business under a receiver for the benefits of his creditor the OWNER shall be at liberty to:

- i) Give such receiver the liquidator or other person the option of carrying out the performance under the Agreement, subject to the receiver, liquidator or other person providing a guarantee up to an amount to be agreed upon by the OWNER and such receiver liquidator or other person for the due and faithful performance of the CONTRACTOR's obligations under this Agreement, or
- ii) If the receiver, liquidator or other person fails within 30 (thirty) days to exercise the option to carry out performance of the Agreement then the OWNER may terminate the Agreement and give notice in writing to the CONTRACTOR or to the receiver, liquidator or to any person in whom the Agreement may have become vested.

### TERMINATION OF CONTRACT

If the CONTRACTOR violates the Agreement or shall neglect to execute the work with due diligence or expedition or shall refuse or neglect to comply with any reasonable directions, instructions or orders given to him in writing by the Architect/Authorized person as appointed by CVS in connection with the work or shall contravene or breach any provisions of the Agreement, the OWNER may give notice in writing to the CONTRACTOR to make good the failure, neglect or contravention complained of or cure that breach within a period of 30 (thirty) days of receiving such notice and in default of the compliance with the said notice, the OWNER without prejudice to his rights as below may rescind or terminate the Agreement stating therein the effective date of termination, holding the CONTRACTOR liable for the damages that the OWNER may sustain in this behalf.

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

## **CIVIL WORKS**

### **EARTH WORK & EXCAVATION**

The rates quoted shall include the following:

- a) Excavation either straight, inclined or curved in trenches, footings, rafts, basements etc., including raking out, cutting and dressing sides and bottom to true dimension and depositing excavated stuff beyond three meters clear of the edge of the trench, filling back as required and disposal of surplus earth anywhere within the plot as directed by Authorized person as appointed by CVS/ architect.
- b) Clearing all shrubs, roots, vegetation and trees from alignment of the buildings
- c) Bailing out, pumping out or otherwise removing all water which may accumulate in the excavation from any or all causes whatsoever
- d) All labour and material required for fencing and protection against risk of accident to open excavations etc., with necessary shoring planking and strutting and for providing gangways, with handrails across open trenches etc., where necessary during the progress of the work.
- e) Watching and lighting arrangements wherever necessary whether ordered by the Owner/ Architect/Authorized person as appointed by CVS or otherwise
- f) Filling back available excavated earth in plinths, sides of foundations, sides of basements, under floors and for ground formation etc., as and where required in 150 mm thick layers, breaking coods, ramming, watering, consolidation, the same with 10 M.T. Rollers or hand tampers where rollers are not accessible, and dressing the filled up areas.
- g) Battering, benching, forming steps in the sides of foundations and mass excavations where required and removal of the slips and falls. This item is not payable separately.
- h) Water table has to be maintained at least 1.0 Mt., below lean concrete level of raft by providing adequate de-watering arrangements. This water table has to be maintained till Basement floor slab is cast including the retaining wall. This item is not payable separately.
- i) Water table shall also be maintained till such time the waterproofing of retaining wall and raft is complete. This item is not payable separately.

### **PLAIN AND REINFORCED CEMENT CONCRETE**

The rates quoted shall include the following:

- a) Making all drips, grooves, moulds, curved surfaces and chamfered edges etc. in concrete and/or plaster work as directed

- b) Forming all expansion and/or construction joints as per standard specification and/or as directed.
- c) All projections, too things, ornamental work etc. and finishing to shape as directed.
- d) Embedding all electric pipes, fan hook boxes, false ceiling suspensions and inserts of any description etc. in R.C.C slab, beam, walls etc., as directed.
- e) Installing a calibrated cube-testing machine at site, getting it calibrated every month and submitting test report to the architects. Alternately getting the cubes tested in an approved lab.
- f) Preparing 7 days and 28 days test cube, testing them at site and /or getting tested in an approved laboratory including all fees, costs, transportation etc. relating to them.
- g) Providing slump tests apparatus at site and test for checking the workability of concrete.
- h) Working up or hacking of concrete surfaces for providing keys for further concrete work including applying thick cement slurry or mortar as directed
- i) Providing 12 mm thick cement plaster 1:6 (1 cement: 6 fine sand) and a coat of lime wash on all brick wall surfaces serving as bearing for RCC work.
- j) Exposed architectural or ordinary centering, shuttering and formwork, strutting, boxing, propping etc. except wherever specified to exclude in the item. Shuttering to be made water tight with plywood and timber if necessary.
- k) Use of shuttering oil as specified
- l) Use of cement slurry over shuttering before commencing concreting
- m) Machine mixing of all concretes and hoisting to all lifts, carrying to all leads, consolidating by rodding, vibrating, tamping and curing.
- n) Sinking of floors in specified areas.
- o) Providing of dowel bars wherever directed by the architect/Authorized person as appointed by CVS.
- p) Forming cutouts, openings and concreting at a later stage as required
- q) Providing sleeves for pipes etc. before concreting
- r) Working in narrow widths, small quantities and curved alignments etc.

- s) Removing rust, mild scales, oil, grease, paint etc. from steel reinforcement.
- t) Providing 16 gauge annealed binding wire and binding the reinforcement with the same without any extra cost on the account for labour or material
- u) Providing cover to steel with cement concrete briquette spacers at no extra cost.
- v) Payment of labour for laying steel as per Indian standard section weights actually placed in position as per design and drawing or as directed
- w) The contractor shall not undertake the RCC work including form-work of first floor before laying lean concrete on the lowest floor if so directed by the architect/Authorized person as appointed by CVS.
- x) Wherever new structural slab/beam is to be connected with the old structural slab/beam, the cost of chipping the necessary old concrete members and re-casting the same is to be included in the item.

### MASONRY WORK

The rates quoted shall include the following:

- a) Work in English bond or any other design as directed by the architect/Authorized person as appointed by CVS.
- b) Work in square round and rectangular pillars, flower troughs, under floor drains, making curved and tapered surfaces steps etc.
- c) Forming openings, chases, grooves etc.
- d) Embedding/ cutting chases for conduits, boxes other fixture of any descriptions, hold fasts of doors,
- e) Fixing Windows glazing etc.,
- f) Making all drip courses, projected courses of any description, offsets, setbacks, corbels, architrave's or any other feature of description.
- g) Raking out joints for plastering or pointing in plinth super structure or finishing joints flush in foundation as directed
- h) Bonding with RCC work
- i) Work in narrow widths, small quantities etc. supplying moulds, taking briquettes, getting tested, any fees, costs etc., relating to the same.



- j) Machine mixing of mortars and concrete
- k) Curing of brick work
- l) Preparing bricks for testing (efflorescence, water absorption, crushing strength, shapes, sizes etc.) in the field laboratory and or an approved laboratory, and any fees, costs etc. relating to them.

**SECTION - V**  
**SPECIAL CONDITIONS OF CONTRACT**

1. The work shall be carried out as per specifications in the Tender schedule/latest C.P.W.D. Specifications, along with the correction slips; issued up to date of acceptance of Tender in case of doubt the decision of the Architect shall be final and binding on the Contractor.
2. The Contractor shall carryout the work in stages as to cause minimum disturbance to the working of College of Vocational Studies, New Delhi and other organizations. He shall be responsible for any damage to the equipment or structures, injury to the personnel during the progress of the work and he shall be liable to pay compensation as may be decided by the Principal or his authorized representative in respect of such damages /injuries.
3. The serviceable materials out of the dismantled materials if any will be the property of the college and properly stacked by the Contractor as directed by the Authorized person as appointed by CVS. Decision of principal or his authorized representative on the service-ability of the dismantled materials shall be final and binding on the Contractor.
4. All labour Employed by the Contractor shall be covered by the workman's compensation act. Any death, injury or mishap to the workmen of the Contractor will entirely be the Contractor's responsibility and the College, shall not be liable to pay any damages for the same.
5. Contractor shall take adequate safety precautions to avoid any accident etc. at site. Shall erect proper barricades, sign boards, lights, etc. shall provide safety belts, safety shoes, head gears (helmet I.S.I standard) and shall be fully responsible for any criminal & civil liabilities. All safety arrangements are to be made by contractor at his own cost.
6. No labor or material rate escalation claims will be entertained from the contractor as this work has to be completed within 5 month from the date of commencement of work at site.
7. Rates quoted shall be applicable equally to all floors and shall include all lifts and leads. No extras on this account shall be payable.
8. Water and electricity shall be arranged by the Contractor. In case it is available, the same can be provided by the College authorities at one point. A recovery @ 1 % for providing electricity and 1% for providing water shall be made by the college authorities on gross value of work done by the contractor.
9. Rates quoted by the contractor shall be inclusive of all items of work listed below and Any work, supplies or services which might have not been specifically mentioned in the specifications,

schedule of items or drawings but are necessary for entire completion of the work shall be executed / provided/ rendered by the CONTRACTOR without any Extra cost and within the time schedule specified. Rates quoted shall be deemed to include such elements of labour and materials necessary to complete the items of work in all respects

10. Contractor shall submit only computerized Bills supported with computerized measurement sheets in A4 size hard copy prints and soft copy in Microsoft Excel Format. Manual Handwritten bills or measurement sheets will not be accepted.
11. Labour Camp will be arranged by the contractor outside the college premises. College of Vocational Studies does not have space for labour camps inside its premises.
12. Principal CVS New Delhi reserves the right to decrease or increase the items of work, change the specifications of works or remove the entire/any section of work as may be deemed necessary to finish the works within the available budget.
13. JV or Consortium of Companies will not be accepted.
14. Any subletting of work after the award from the College is not allowed and for any subletting of specialized work bidder needs to take permission prior from College for subletting of specialized works.
15. Any corrigendum will be uploaded on college website or e-procurement portal. Bidders are advised to check for the same. Any corrigendum uploaded, will be considered a part of the Tender Document.
16. Self-attested copy of tender documents will be uploaded on the portal.
17. Bidders are advised to register and submit the tender document in advance with the e-procurement portal in advance.
18. Hardcopy of all the required documents will also be submitted to College latest by 11000 hrs on 14.03.2019.
19. Bidders registered with Ministry of Micro Small and Medium Enterprises and having valid registration acknowledgement can avail exemption from submission of tender document fee and EMD as per policies of MSME. Bidders taking exemption are required to submit and upload their MSME Certificates, failing of which the bid will be rejected.

## SECTION VI

### Formats

#### ACCEPTANCE LETTER

(On Company's Letter Head)

To,  
The Principal  
College of Vocational Studies University of Delhi Triveni  
Sheikh Sarai New Delhi 110017

Dear Sir,

I/We have read and examined the following documents relating to tender for Civil works pertaining to construction of Rain Water Harvesting System and Installation of Automated STP Plant at College of Vocational Studies, New Delhi.

- 1) Notice Inviting Tender Specifications
- 2) Drawings
- 3) General Conditions of Contract
- 4) Special Conditions
- 5) Tender Schedule

I/We hereby Tender for execution of the works referred to in the aforesaid, documents upon the terms and conditions contained or referred to therein and in accordance in all respects with the specifications, designs, drawings and other relevant details at the rates quoted by us in the Tender schedule. We have visited and examined the site of works and are fully aware of the site conditions, having a bearing on the contract.

In consideration of I/We being invited to the Tender, I/We agree to keep the Tender open for acceptance for 90 Days from the due date of submission thereof and not make any modifications in the terms and conditions which are not acceptable to Principal, College of Vocational Studies , New Delhi.

A sum of Rs. \_\_\_\_\_/- (Bank Draft No.....Dated.....) is hereby forwarded in Bank Draft in the favor of Principal, College of Vocational Studies, New Delhi as earnest money. If I/we fail to keep the Tender open as aforesaid or make any modifications in the terms and conditions of the Tender which are not acceptable to Principal, College of Vocational Studies, New Delhi. I/We agree that Principal, College of Vocational Studies, New Delhi, Shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Should this Tender be accepted, I/we hereby agree to abide by and fulfill all the terms, conditions and provisions of the

aforesaid documents.

If after the Tender is accepted, I/we fail to commence the execution of the works as provided in the conditions, I/we agree that Principal, College of Vocational Studies, New Delhi shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely.

I/We agree that should Principal, College of Vocational Studies, New Delhi. decide to forfeit earnest money as aforesaid, unless a sum equal to the earnest money mentioned above is paid by us forth-with, the principal College of Vocational Studies, New Delhi may at its option recover it out of the deposit and in the event of deficiency, out of any other money due to me/us or otherwise.

Duly authorized to sign the Tender On behalf of M/s

.....

Signature.....

Dated.....

Postal Address.....

### **AFFIDAVIT / UNDERTAKING**

I/We have read and understood the instructions and the terms and conditions contained in the document .I/We do hereby declare that the information furnished/uploaded is correct to the best of my/our knowledge and belief .It is certified that we have not been blacklisted by the Organization Of Government of India including CVC. I /We have neither failed to perform on any agreement nor been expelled from any project or agreement nor have been any agreement terminated for breach during the last seven years .I/We further undertake and confirm that eligible similar work(s) has/have not been got executed through any agency/ firm(s) on back to back basis. Further that ,if such a violation comes to the notice of Department. Then I/We shall be debarred for tendering in COLLEGE OF VOCATIONAL STUDIES in future forever. Also, if such a violation comes to the notice of department before or after the date of start of work. The CVS shall be free to forfeit the entire amount of earnest Money Deposit and Performance Guarantee. The undersigned is fully authorized to submit this document on behalf of the organization. We authorize COLLEGE OF VOCATIONAL STUDIES to approach individuals, employers, firms and corporations to verify our competence and general reputation.

(Signature of the Bidder)  
Name and Address of the bidder  
Date:

**FORM 'A'**

**FINANCIAL INFORMATION**

- I. Financial Analysis – Details to be furnished duly supported by figures in balance sheet/ profit & loss account for the last five years duly certified by the Chartered Accountant, as submitted by the applicant to the Income Tax Department (Copies to be attached).

**Years**

2011-12	2012-13	2013-14	2014-15	2015-16

- (i) Gross Annual turnover on construction works.
- (ii) Profit/Loss.

- II. Financial arrangements for carrying out the proposed work.

NOTE: - Average Annual Financial turnover for similar work

Signature of Chartered Accountant with Seal  
**Signature of Bidder(s).**

**FORM 'B'**

**Details Of Eligible Similar Nature Of Works Completed During The Last Seven Years Ending Previous Day Of Last Date Of Submission Of Tenders.....**

S. No.	Name of work/ project and location	Owner or sponsoring organization	Cost of work in crores of rupees	Date of commencement as per contract	Stipulated date of completion	Actual date of completion	Litigation/arbitration cases pending/in progress with details*	Name and address/ telephone number of officer	Whether work was done on back to back basis Yes/No
1	2	3	4	5	6	7	8	9	10

\* Indicate gross amount claimed and amount awarded by the Arbitrator.

**Signature of Bidder(s)**



**FORM 'C'**

**PERFORMANCE REPORT OF WORKS REFERRED TO IN FORMS "B"**

1. Name of work/project & location
2. Agreement no.
3. Estimated cost
4. Tendered cost
5. Date of start
6. Date of completion
  - (i) Stipulated date of completion
  - (ii) Actual date of completion
7. **(a) Whether case of levy of compensation for delay has been decided or not** Yes/No  
**(b) If decided, amount of compensation levied for delayed completion, if any**
8. Performance Report

(1) Quality of work	Outstanding/Very Good/Good/Poor
(2) Financial soundness	Outstanding/Very Good/Good/Poor
(3) Technical Proficiency	Outstanding/Very Good/Good/Poor
(4) Resourcefulness	Outstanding/Very Good/Good/Poor
(5) General Behavior	Outstanding/Very Good/Good/Poor

Dated:

Executive Engineer or Equivalent

**FORM "E"**  
**STRUCTURE & ORGANISATION**

1. Name & address of the bidder
2. Telephone no./Telex no./Fax no. & Email id
3. Legal status of the bidder (attach copies of original document defining the legal status)
  - (a) An Individual
  - (b) A proprietary firm
  - (c) A firm in partnership
  - (d) A limited company or Corporation
4. Particulars of registration with various Government Bodies (attach attested photocopy)

**Organization/Place of registration**

**Registration No.**

- 1.
- 2.
- 3.
5. Names and titles of Directors & Officers with designation to be concerned with this work.
6. Designation of individuals authorized to act for the organization
7. Has the bidder, or any constituent partner in case of partnership firm Limited Company/Joint Venture, ever been convicted by the court of law? If so, give details.
8. In which field of Civil Engineering construction the bidder has specialization and interest?
9. Any other information considered necessary but not included above.

**Signature of Bidder(s)**

**PROJECT: Preparation of Report for Rain Water Harvesting System & Proposal for STP Plant for College of Vocational Studies, New Delhi.**

**SUMMARY SHEET**

<b>SECTION</b>	<b>DESCRIPTION</b>	<b>AMOUNT</b>
I	External Garden Water Supply	
II	External Sewerage	
III	External Rain Water Disposal	
IV	STP Plant	
	STP 60 Kld Equipment	
	STP: Electrical Works	
V	Water Tank	
	<b>Total (A)</b>	
	Add Contigencies @ 2%	
	<b>Total (B)</b>	
	Add GST @12%	
	<b>Grand Total (C)</b>	

**PROJECT: Preparation of Report for Rain Water Harvesting System & Proposal for STP Plant for College of Vocational Studies, New Delhi.**

**BOQ OF EXTERNAL PLUMBING WORKS**

S. No.	DSR-2016/MR	Description	Unit	Qty.	Rate	Amount
<b>Subhead-I: External Garden Water Supply</b>						
1.1)	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. (External work)				
a)	18.12.6	50 mm dia nominal bore	Metre	35		
b)	18.12.7	65 mm dia nominal bore	Metre	850		
c)	18.12.8	80 mm dia nominal bore	Metre	0		
1.2)	18.13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :				
a)	18.13.2	50 to 80 mm nominal bore	Each	21		
1.3)	18.17	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
a)	18.17.4	50 mm nominal bore	Each	21		
b)	18.17.5	65 mm nominal bore	Each	3		
c)	18.17.6	80 mm nominal bore	Each	0		
1.4)	18.19	Providing and fixing gun metal non- return valve of approved quality (screwed end) :				
	18.19.4	50 mm nominal bore				
a)	18.19.4.2	Vertical	Each	0		
	18.19.5	65 mm nominal bore				
b)	18.19.5.2	Vertical	Each	2		
	18.19.6	80 mm nominal bore				
c)	18.19.6.1	Vertical	Each	0		
1.5)	18.41	Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :				
a)	18.41.6	50 mm diameter pipe	Metre	35		
b)	18.41.7	65 mm diameter pipe	Metre	850		
c)	18.41.8	80 mm diameter pipe	Metre	0		
1.6)	18.46	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :				
a)	18.46.6	50 mm nominal bore	Each	0		
b)	18.46.7	65 mm nominal bore	Each	2		
c)	18.46.8	80 mm nominal bore	Each	0		
1.7)	MR	Providing & fixing in position 25 mm dia lawn hydrants consisting of GI nipple and threaded hose receiver complete as required.	Nos.	21		

S. No.	DSR-2016/MR	Description	Unit	Qty.	Rate	Amount
<b>Subhead-I: Total</b>						
<b>Subhead-II: External Sewer Drainage</b>						
2.1)	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
a)	19.6.1	100 mm dia. R.C.C. pipe	Metre	0		
b)	19.6.2	150 mm dia. R.C.C. pipe	Metre	0		
c)	19.6.3	250 mm dia. R.C.C. pipe	Metre	150		
d)	19..6.4	300 mm dia. R.C.C. pipe	Metre	0		
2.2)	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
a)	2.10.1.2	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	Mtr.	150		
2.3)	19.9	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	19.9.1	0.91 m deep with SFRC cover and frame (heavy duty, HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12mm thick cement plaster at the external surface shall be paid for separately) :				
a)	19.9.1.2	With Sewer bricks conforming to IS : 4885	Each	7		

S. No.	DSR-2016/MR	Description	Unit	Qty.	Rate	Amount
2.4)	19.10	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m				
a)	19.10.2	With Sewer bricks conforming IS : 4885	metre	7		
2.5)	19.11	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement, all complete as per standard design :				
	19.11.1	1.68 m deep with SFRC Cover and frame (heavy duty HD-20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 12 mm thick cement plaster at the external surface shall be paid for separately) :				
a)	19.11.1.2	With Sewer bricks conforming IS : 4885	Each	3		
<b>Subhead-II: Total</b>						
<b>Subhead-III: External Rain Water Disposal</b>						
3.1)	19.6	Providing and laying non-pressure NP2 class (light duty) R.C.C. pipes with collars jointed with stiff mixture of cement mortar in the proportion of 1:2 (1 cement : 2 fine sand) including testing of joints etc. complete :				
a)	19.6.2	150 mm dia. R.C.C. pipe	Metre	200		
a)	19.6.3	250 mm dia. R.C.C. pipe	Metre	350		
3.2)	2.10	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m :				
a)	2.10.1.2	Pipes, cables etc. exceeding 80 mm dia. but not exceeding 300 mm dia	Mtr.	550		

S. No.	DSR-2016/MR	Description	Unit	Qty.	Rate	Amount
3.3)	MR	Providing fixing, jointing and testing in position the following UPVC pipes( 6Kg/sq cm) conforming to IS: 4985 for sewage cut to required lengths including all necessary fittings and specials such as bends, junctions, offsets, making proper connections. Including providing PCC thrust block at 2 mtr. centre to centre. Pipe to be laid below ground level in trenches upto required depth including excavation in all kind of soil, dewatering, refilling, watering, ramming & removing the surplus excavated material and making good the same complete as required. Cost shall include making connection with municipal sewer manhole including all associated civil & cost of all liaison works for getting approval.				
a)	MR	100 mm dia	Mtr.	100		
b)	MR	150 mm dia	Mtr.	200		
c)	MR	200 mm dia	Mtr.	50		
3.4)	MR	Constructing brick masonry catch basin with conventional bricks in cement mortar 1:4 (1 cement: 4 coarse sand) FRPlight duty cover with frame, Size 600 x 600 mm up to 600 mm deep & 600x600 mm above 600 mm deep , R.C.C. top slab with 1:2:4 mix (1 cement: 2 coarse sand: 4 graded stone. Aggregate 20 mm nominal size), foundation concrete 1:5:10 (1 cement : 5 coarse sand (Zone III) : 10 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete etc. complete as per standard design.	Each	15		
3.5)	19.7	Constructing brick masonry manhole in cement mortar 1:4 ( 1 cement : 4 coarse sand ) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design :				

S. No.	DSR-2016/MR	Description	Unit	Qty.	Rate	Amount
	19.7.1	Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame 15 kg) :				
a)	19.7.1.2	With Sewer bricks conforming to IS : 4885	Each	63		
3.6)	MR	Providing and constructing Rainwater harvesting pit of 3000 (Dia mm) X 3000mm (D) size (Internal) in overall size with inlet and outlet connection with upto 150mm from ground level 1st class brick 230mm thick in Cement mortar 1:4 (1 Cement : 4 Coarse sand) inside and outside 12mm thick plaster with Cement mortar 1:3 (1 Cement : 3 Coarse sand) with a floating coat of neat cement on inside surface. After 1500, depth 500mm thick border. C.I. (heavy duty) manhole cover 560mm (weight not less than 208 kg) including necessary excavation ( all type SOIL hard-rock)backing filling, disposal of surplus earth, providing and fixing of C.I. manhole steps complete as per standard design.	Each	1		
3.7)	MR	Providing and constructing Rainwater harvesting pit of 4500 (Dia mm) X 3000mm (D) size (Internal) in overall size with inlet and outlet connection with upto 150mm from ground level 1st class brick 230mm thick in Cement mortar 1:4 (1 Cement : 4 Coarse sand) inside and outside 12mm thick plaster with Cement mortar 1:3 (1 Cement : 3 Coarse sand) with a floating coat of neat cement on inside surface. After 1500, depth 500mm thick border. C.I. (heavy duty) manhole cover 560mm (weight not less than 208 kg) including necessary excavation (all type SOIL hard-rock) backing filling, disposal of surplus earth, providing and fixing of C.I. manhole steps complete as per standard design.	Each	1		
3.8)		SITC of ISI mark( IS:8472) Centrifugal monoblock pump set of approved make, TEFC, permanent split capacitor type (PSC), fitted with thermal overload protection, mechanical seal, 2880/ 3000 RPM, single phase(180 to 240 V). Including cost of hardware etc on existing platform complete. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively. (For Rain water storage tank water transfer Pump)				
	MR	1.5 HP, 1-Ø, (6-28)Mtr, (150-75)LPM	Each	1		
<b>Subhead-III: Total</b>						



<b>PROJECT: Preparation of Report for Rain Water Harvesting System &amp; Proposal for STP Plant for College of Vocational Studies, New Delhi.</b>					
<b>BOQ OF STP Works</b>					
<b>Item No</b>	<b>Description</b>	<b>Unit</b>	<b>Qty</b>	<b>Rate</b>	<b>Amount</b>
	<b>SEWAGE TREATMENT PLANT</b>				
	Design, supplying, installing, testing & commissioning of MBR based Sewage Treatment Plant of capacity 60 KLD Including excavation, back filling & disposal of surplus earth /Civil construction work for the following duty:				
	Nature of effluent - Domestic Sewage from toilets, bathroom,canteen kitchen waste water.				
	Daily average flow - 60 Cum / Day				
	pH - 6.5 – 8.5				
	BOD5 - 250 – 350g/L				
	S. Solids - 200 – 400 Mg/L				
	COD - 450 – 600 Mg/L				
	Oil & Grease - 50 Mg / L				
	Sewage discharge standard after treatment				
	pH - 6.0 – 8.0				
	BOD5 - <5ppm				
	S. Solids - <5ppm				
	COD - < 40 ppm				
	Oil & Grease - <Nil				
	<b>CIVIL WORK</b>				
	<b>Sewage Treatment Plant shall include the following Tanks, Foundation &amp; Plant Room in Civil :</b>				
	Screen /O&G Chamber 3 KL	No	1		
	Sewage Equalization /Collection Tank 20 KL	No	1		
	Plant Room Shed Work	No	1		
	STP Equipment & Tank Foundation	No	1		
	<b>MS Prefabricated Tank MS 6 MM FRP Line 3mm</b>				
	Anoxic Tank 6 KL	No	1		
	Aeration Tank 12 KL	No	1		
	MBR Tank 6 KL	No	1		
	Sludge holding Tank 5 KL	No	1		
	Treated Water Tank 15 KL	No	1		
	<b>ELECTROMECHANICAL WORK</b>				
1.0	Supply, installation, testing & commissioning of SS screen perforated 6-8 mm 1 No. & perforated 3-2mm 1 No. size of both screen is 800x1000 mm	Nos.	2		

2.0	Supply, installation, testing & commissioning of level Switch and controller for automatic operation of the system with high/low level alarm with low level stop and high level start logic.	No	4		
3.0	<i>Contractor shall ensure submission of detailed GA drawings (Plan &amp; Section), P &amp; I diagram, schematic diagram for the above mentioned component and additional component if so required for the complete working of the STP and got it approved by the Owner's Architect / Project Manager / Consultants. Contractor shall also ensure approval of his design process from all concerned local authority</i>	JOB	1		
4	Supply, installation, testing & commissioning of non clogging type pumps complete with all accessories, motor of required capacity. Delivery header with isolation valve, level controller (with wiring) to control the level of sump automatically. Pumps shall have following duty:				
4.1	Submersible Raw sewage Transfer Pumps ( 2Nos. - 2working & 1 standby) , Flow rate (each) = 3m <sup>3</sup> /hr MOC : CI Head = 8-10 Mtr ( pumps for transferring Sewage from equilisation tank. To MBBR Tank Solid Handling size 30-40mm) Make:Wilo/Ebara/Grundfos	Nos.	2		
4.2	Sludge Recirculation Pumps with CI body & CI impeller pump 1 working Make: Wilo/Ebara/Grundfos Capacity : 8 m <sup>3</sup> /hr Head : 8-10 M (Solid handling size for above pumps shall be 10mm).	No	2		
	Air diffusion system shall include the following:				
5	2 Nos. Twin type rotary air blowers (Two working & one standby) capable of delivering 80m <sup>3</sup> /hr of free air at 0.5 kg/cm <sup>2</sup> driven through "V" belt or directly coupled through flexible coupling to a TEFC motor of suitable HP, Suitable for 415 ± 10% volts, 3 phase, 50	Nos.	2		
6	Air piping shall comprise of pipes with MSEP Header complete with all fittings such as tees, crosses, plugs, sockets, elbows, reducers, supports & clamps, etc cutting chases & making good. Contactor to	Lot	1		

	submit detailed P & I indicating their proposal				
7	Non clog type air retrieval diffusion(EPDM) system capable of handling 5-8 cfm of air with oxygen transfer efficiency of 3-4% per/meter water depth. Air dispersion grid shall be assembled in modular form so that they can be replaced / repaired easily from plat form at the top. ( fine bubble epdm	Lot	1		
8.0	Providing and fixing all piping (as described below) and isolation control valves for making the system complete.				
	SS 304 : Submerged air piping, Air Piping				
	PVC :Pumped effluent & tank overflow pipe line				
	MSEP : Interconnecting pipe line after delivery header of pump/ filter	Lot	1		
9	Supplying, installing, testing and commissioning of Mixer for Anoxic Tank with all accessories, motor of required capacity. Suitable for 415 ± 10% volts, 3 phase, 50 cycles A/C supply.MOC CI Make : Bonwario/Bonfigloi/Eqv	Nos.	1		
10	Supplying installing, testing and commissioning of MBR Membrane Module in MBR Tank of Sutable Capacity for 60 KL in SS 304 Skid				
	MOC : PVDF				
	Type : Outside In				
	Micron : 0.2 Micron				
	Effective Surafce Area : 20m2/Membrane				
	Membrane Quantity -6 Nos. = 1 Set				
	Make : Deerfos/GE/Toray	Set	1		
11	Supplying, installing, testing & commissioning of Horizontal centrifugal water pumps,CI Body & Impeller along with motor, pressure gauge with isolation cock, Isolation valve, NRV on delivery line. Isolation valve. Mechanical seal, drain pipe with valve for the pump. The pump shall be suitable for 415±10% volts 3 phase AC supply				
	MBR Permiate pump				
	Capacity : 3m3/hr				
	Head :12-20M				

	No. of Pumps (1W+1S) Make: Wilo/Ebara/Grundfos	Nos.	2		
12	Supplying, installing, testing and commissioning of Filters press 12"X12" 12 no. platewit h all fittings & accessories. MOC of Plate : PP Semi automatic hydraulic Operated Make: DS/DFP/Envrio/Quasys	No	1		
13	Supply, installation, Testing & commissioning of sludge feed pumps screw type cpmplete with all fittings & accessories				
	QTY : 2 No. 1 W +1S				
	Capacity : 1 m3/hr @ 40 M H				
	MOC : CI				
	Make UT pumps / Rotokmac pumps	Set	1		
14	Supply, installation, testing & commissioning of UV System for Disinfection of Treated Water Flow : 3m3/hr MOC: SS 304 Make: Sukrut/Alfa	No	1		
15	Online Instrument				
	DO Meter - 1Nos. Make : Zumo/Burkert				
	pH Meter - 1 Nos.				
	Electro Megnatic Flow Meter - 1Nos. Make : Adept/Electromegnatic	Set	1		
16	Supplying, installing, testing & commissioning of Horizontal centrifugal water pumps, CI Body & Impeller along with motor, pressure gauge with isolation cock, Isolation valve, NRV on delivery line. Isolation valve. Mechanical seal, drain pipe with valve for the pump. The pump shall be suitable for 415±10% volts 3 phase AC supply				
	Treated Water Tyransfer Pump				
	Capacity : 10m3/hr				
	Head :40 M				
	No. of Pumps (1W+1S) Make: Wilo/Ebara/Grundfos	Nos.	2		
<b>TOTAL OF STP EQUIPMENT</b>					
D	<b>STP ELECTRICAL PANEL WITH PLC &amp; HMI</b>				

	Design, fabrication, assembling, wiring, supply, installation, testing and commissioning of motor control centre fabricated out of 14 gauge CRCA sheet steel. Cable gland plates shall be provided on top as well as at the bottom of the panels. Panels shall be treated with all anticorrosive process before painting as per specifications with 2 coats of red oxide primer and final approved shade of powder coated paint. 2 Nos. earthing terminals shall be provided for 3 phase, 4 wire, 50 Hz supply system. Lifting hooks shall also be provided in case of large panels. Approval shall be taken for each panel before fabrication.				
1	<b>Motor Control Centre</b>				
	<b>Incoming</b>				
	100 amps TPN MCCB with the following accessories:				
	a. 0-500 volts 96 x 96 mm square electronic voltmeter with selector switch shall be protected by 2 amps TP MCB. 1 Set				
	b. 0-200 amps 96 x 96 mm square electronic ammeter with selector switch and 125./5 amps 10 VA CL:1 CTs. 1 Set				
	c. Phase indicating lamps shall be protected by 2 amp SP MCB 3 Sets				
	<b>Bus Bar</b>				
	200 amps TPN (15 KA) copper bus bar with heat shrinkable insulation sleeves.				
	a. Required Nos of required capacity TPN MCB for direct on line starter/star delta starters and out going feeders to all the pumps/blowers etc. (including standbys). Each compartment shall contain auto / manual selector switch and indicating lamp with MCB's for 'ON/OFF/TRIP' status of motor				
	b. Motor starters shall be provided with Automatic level controller				
	c. DOL starters shall be used for mototrs below 10HP and Star-Delta Starters for other motors .				
	d. Provision shall be made for providing potential free contacts to all pumps starters				
	e. All MPCB, Contactor,Overload Relay Shall be L&T				
	f. PLC& HMI : Mitsubishi/Allen Bradley/ Siemens	Set	1		
	Supplying, installing, testing & commissioning of Cables , Conector, Cable Trays, to make Electrical Installation Complete.				
2	<b>a) Cable</b>				
	Type - 3& 4 Core Alu/Copper				

	Capacity - As per the control panel and machines to connected.				
	Size of cable - 3 & 4 core x up to 4sqmm or as required.				
	<b>b) Cable Tray</b>				
	Qty - As required				
	Type - Slotted GI				
	Size - 2" x 4" x 6" or as required.				
	<b>c) Cable Tray Support</b>				
	Quantity - As per site requirment of approved quality.				
	<b>TOTAL SUMMARY FOR ELECTRICALS</b>	Lot	1		

<b>PROJECT: Preparation of Report for Rain Water Harvesting System &amp; Proposal for STP Plant for</b>						
<b>BOQ OF U.G.T</b>						
<b>No.</b>	<b>DSR-16</b>	<b>DESCRIPTION OF ITEM</b>	<b>Qty</b>	<b>Unit</b>	<b>Rate</b>	<b>Amount</b>
<b>1</b>		<b>EARTH WORK</b>				
1	2.6	Earth work in excavation by mechanical means (Hydraulic excavator)/ manual means over areas (exceeding 30cm in depth. 1.5m in width as well as 10 sqm on plan) including getting out and disposal of excavated earth				
	2.6.1	All kinds of soil	34.50	cum		
2	2.25	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundation etc. in layers not exceeding 20 cm in depth, consolidating each deposited layer by ramming and watering, lead upto 50 meter and lift upto 1.5 meter.	1.50	cum		
		<b>CONCRETE WORK</b>				
3	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
	4.1.3	1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size).	1.50	cum		
4	5.1	Providing and laying in position specified grade of reinforced cement concrete, excluding the cost of centering, shuttering, finishing and reinforcement - All work up to plinth level :				
	5.1.2	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).				
	i	Base	2.25			
		Retaining Walls	4.60			
			2.76			
		Roof Slab	2.25			
		<b>Total</b>	<b>11.86</b>	<b>Cum.</b>		
5	5.9	Centering and shuttering including strutting, propping etc. and removal of form for all heights :				
	5.9.2	Walls (any thickness) including attached pilasters, butteresses, plinth and string courses etc.	40.00			
			1.84			
			24.00			
			1.84			
		Total	67.68	Sqm		
	5.9.3	Suspended floors, roofs, landings, balconies and access platform	15.00			
			1.50			
			0.90			
		Total	17.40	Sqm		
6	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
	5.22.6	Thermo-Mechanically Treated bars of grade Fe-500D or more.				
		Base	337.50	Kg		
		Walls	993.60	Kg		
		Roof Slab	270.00	Kg		
		Total of 5.22				

No.	DSR-16	DESCRIPTION OF ITEM	Qty	Unit	Rate	Amount
		<b>FINISHING WORK</b>				
7	13.5	15 mm cement plaster on rough side of single or half brick wall of mix:				
	13.5.1	1:4 (1 cement: 4 coarse sand)				
		Base	15.00			
		Roof Slab : Beneath	15.00			
		Total of 13.50	30.00	Sqm		
8	13.9	Cement plaster 1:3 (1 cement: 3 coarse sand) finished with a floating coat of neat cement.				
	13.9.1	12 mm cement plaster				
		Retaining Walls	20.00			
			12.00			
		Total of 13.9	32.00	Sqm		
		<b>PLUMBING WORKS</b>				
9	18.12	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. (External work)				
	18.12.6	50 mm dia nominal bore	0	Metre		
	18.12.7	65 mm dia nominal bore	50	Metre		
	18.12.8	80 mm dia nominal bore	50	Metre		
10	18.13	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete :				
	18.13.2	50 to 80 mm nominal bore	2	Each		
11	18.17	Providing and fixing gun metal gate valve with C.I. wheel of approved quality (screwed end) :				
	18.17.4	50 mm nominal bore	0	Each		
	18.17.5	65 mm nominal bore	2	Each		
	18.17.6	80 mm nominal bore	2	Each		
12	18.19	Providing and fixing gun metal non- return valve of approved quality (screwed end) :				
	18.19.4	50 mm nominal bore				
	18.19.4.2	Vertical	0	Each		
	18.19.5	65 mm nominal bore				
	18.19.5.2	Vertical	0	Each		
	18.19.6	80 mm nominal bore				
	18.19.6.1	Vertical	1	Each		
13	18.41	Providing and filling sand of grading zone V or coarser grade, allround the G.I. pipes in external work :				
	18.41.6	50 mm diameter pipe	0	Metre		



No.	DSR-16	DESCRIPTION OF ITEM	Qty	Unit	Rate	Amount
	18.41.7	65 mm diameter pipe	50	Metre		
	18.41.8	80 mm diameter pipe	50	Metre		
14	18.46	Providing and fixing G.I. Union in G.I. pipe including cutting and threading the pipe and making long screws etc. complete (New work) :				
	18.46.6	50 mm nominal bore	0	Each		
	18.46.7	65 mm nominal bore	2	Each		
	18.46.8	80 mm nominal bore	1	Each		
		<b>WATER PROOFING</b>				
15	22.23	Providing and applying integral crystalline slurry of hydrophilic in nature for waterproofing treatment to the RCC structures like retaining walls of the basement, water tanks, roof slabs, podiums, reservoir, sewage & water treatment plant, tunnels/ subway and bridge deck etc., prepared by mixing in the ratio of 5 : 2 (5 parts integral crystalline slurry : 2 parts water) for vertical surfaces and 3 : 1 (3 parts integral crystalline slurry : 1 part water) for horizontal surfaces and applying the same from negative (internal) side with the help of synthetic fiber brush. The material shall meet the requirements as specified in ACI-212-3R-2010 i.e by reducing permeability of concrete by more than 90% compared with control concrete as per DIN 1048 and resistant to 16 bar hydrostatic pressure on negative side. The crystalline slurry shall be capable of self-healing of cracks up to a width of 0.50mm. The work shall be carried out all complete as per specification and the direction of the engineer-in-charge. The product performance shall carry guaranteed for 10 years against any leakage.				
	22.23.1	For vertical surface two coats @0.70 kg per sqm per coat				
		Base and Roof Beneath	30.00	sqm		
	22.23.2	For horizontal surface one coat @1.10 kg per sqm.				
		Walls	20.00			
		Total	32.00			
		<b>MARKET RATE: Pump Set</b>				
16		SITC of ISI mark( IS:8472) Centrifugal monoblock pump set of approved make, TEFC, permanent split capacitor type (PSC), fitted with thermal overload protection, mechanical seal, 2880/ 3000 RPM, single phase(180 to 240 V). Including cost of hardware etc on existing platform complete. Pump shall have following HP Rating, phase, Head, minimum Discharge respectively. (For Rain water storage tank water transfer Pump)				
	MR	3.0 HP, 1-Ø, (33-90)Mtr, (166-60)LPM	1	Each		

No.	DSR-16	DESCRIPTION OF ITEM	Qty	Unit	Rate	Amount
		(ADD PLUMBING< ACCORDING TO DSR SERIAL NO)				
		Total for Water Tank (5.00x3.00x2.00)				

**LIST OF APPROVED MAKES**

<b>S. No.</b>	<b>Details of Materials / Equipment</b>	<b>Manufacturer's Name</b>
1	Cast Iron Pipes & Fittings, Manhole covers and frames	<b>a. As per IS:3989</b>
		NECO
		Kapilansh
		Or Equivalent
		<b>b. As per IS:1729</b>
		Raj iron Foundry Agra
		NECO
2	Floor Drain Fixture, Rain Water Outlets & Channel Gratings	GMGR or Equivalent
3	C.P. Grating for Floor Trap	Chilly Cockroach Trap or Equivalent
4	GI Pipes (IS : 1239 and IS : 3589)	Tata Steel
		Jindal (Hissar) or Equivalent
5	GI pipes fittings	Unik
		Zoloto M or Equivalent
6	PVC Pipe	Supreme
		Finolux or Equivalent
7	RCC Pipe	K K
		Pranali or Equivalent
8	Stoneware Pipes, Gully Traps	Perfect Potteries, JABALPUR
		Approved equivalent ISI marked
9	Sluice Valves	Kirloskar
		Zoloto
		Sant or Equivalent
10	Y Strainer	Emerald
		Zoloto
		Sant or Equivalent
11	Hydropneumatic Pumps and other pumps (Raw Water / Plant Room)	DP
		Kirloskar
		Grundfos
12	Variable Frequency Drives	Siemens
		Danfoss
13	TMT	TATA,
		Sail or Equivalent
14	Cement	ACC
		Ambuja
		Ultratech
		Jaypee
15	Couplings	Lovejoy
16	Anti Vibration Mounting	Kanwal Industrial Corporation
		Dunlop
		Resistoflex
17	Pressure Gauge	Emerald
		Fiebig

		HGURU
18	Water Meter (Mechanical Type)	Kaycee
19	Level Controller (Water)	Active Controls
20	Level Indicator (Water)	Active Controls
21	Paints	Asian Paints
		Shalimar Paints
		Or Equivalent
22	MH / Water Tank Plastic Steps	KGM
23	Water Treatment Plant	Watcon
		Deltapure
		HBD GMGR
		EcoWater Systems
24	Water Treatment Vessel	Structural
25	Ultra Violet Water Purifier	Eureka Forbes
		Trojan
		Pentair
		Eurostar
		Aquatech
26	Dosing Pumps	LMI
		Toschon
		Pulser Feeder
27	Insulation for Hot Water Pipes	Armcel – Armaflex (UK)
		Eurobatex – Union Foam (Italy)
		K-Flex
28	Flanges	Class 150 Table H
29	Pypcoat (AW4) for Burried Piping	IWL
		Coaltek
30	Welding Rods	Advani

\* Equivalent make wherever applicable needs prior approval from Architect/Authorized person as appointed by CVS and Equivalent make should be ISI Marked.