

BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF BALUGAON FISH FARM IN
KHURDA DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 21,21,867.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

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**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KHURDA** for the work “**DEVELOPMENT OF BALUGAON FISH FARM IN KHURDA DISTRICT**” from “**C & B**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 21,21,867.00**

02. The tenderer should please note that the work will have to be completed within **04 [FOUR] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 21,300.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

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07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and superscribed for the work **“DEVELOPMENT OF BALUGAON FISH FARM IN KHURDA DISTRICT”** In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KHURDA** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.

In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
- (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{2}{D1} \times R \times (12-D1)$$

KI = Increase in the cost of work during the quarter under consideration due to change in the price of P.O.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work embankment work etc. e	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

CONTRACTOR

TENDER OPENING OFFICER

TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries /Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C. Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot end of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | |
|---|---|--|
| a) Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) Color | : | Grey |
| c) Dimensions | | |
| i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| Pipes | : | As per application |
| For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) Standard Confirming to Attributes Confirms to Standard No. | | |
| i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| ii. Pipe Wall thickness | : | IS 4905 |
| iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.-1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in-charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

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32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all and sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

a. Complete details of earthing electrodes, earthing station and earthing conductors b.

Details of conduit supports

c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

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SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

1. a) Is the bidder currently involved litigation relating to the works. Yes / No in any
- b) If yes, give details:
2. Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. Yes / No
3. a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. Yes / No
- b) If yes, give details:

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

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SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

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**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF BALUGAON FISH FARM IN
KHURDA DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 21,21,867.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

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CONTRACTOR

TENDER OPENING OFFICER

BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF BALUGAON FISH FARM IN KHORDHA DISTRICT

SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Dewatering using 5.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	79.46	Hour	₹ 51.30	₹ 4,076.29
2	Earthwork in slushi soil for renovation of tanks with initial lead and initial lift including rough dressing and braking the colds to 5 to 7cm in size and laying the layers not exceeding 0.30 m in depth including cost of all and complete in all respect as per the direction of the Engineer-in-charge. I. Renovation of Tanks- 4183.80 Cum. Total. 4183.80 Cum.	4183.80	Cum	₹ 155.10	₹ 6,48,907.38
3	Extra lift of 1.50m or part there of over the initial lift of 1.50m in all kinds of embankments and road works and ordinary earth work in general including cost of all and complete as per the direction of the Engineer-in-charge. I. Renovation of Tanks- 1,045.95 Cum. Total. 1,045.95 Cum.	1045.95	Cum	₹ 12.60	₹ 13,178.97
4	Earthwork in hardsoil for excavation of foundation with initial lead and lift including dressing and leveling the beds etc.complete finished in all respect as per the direction of the Engineer-in-charge. I. Renovation of Tanks- 104.13 Cum. II. Watchman Shed- 26.10 Cum. Total. 130.23 Cum.	130.23	Cum	₹ 181.80	₹ 23,675.81
5	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer-in-Charge. I. Renovation of Tanks- 34.71 Cum. II. Watchman Shed- 20.33 Cum. Total. 55.04 Cum.	55.04	Cum.	₹ 678.70	₹ 37,355.64

6	<p>Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge.</p> <p>I. Renovation of Tanks- 11.57 Cum. II. Watchman Shed- 6.26 Cum. Total. 17.83 Cum.</p>	17.83	Cum.	□ 4,651.50	□ 82,936.24
7	<p>P.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.</p> <p>I. Renovation of Tanks- 78.08 Cum. II. Watchman Shed- 1.29 Cum. Total. 79.37 Cum.</p>	79.37	Cum.	□ 4,817.60	□ 3,82,372.91
8	<p>R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.</p>				
8.1	RCC Base Of Column-	5.49	Cum.	□ 4,967.10	□ 27,269.37
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8.2	RCC Column-	1.63	Cum.	□ 11,952.40	□ 19,482.41
8.3	RCC Grade Beam	1.98	Cum.	□ 5,315.90	□ 10,525.48
8.4	RCC Lintel	0.99	Cum.	□ 8,413.80	□ 8,329.66
8.5	RCC Chajja	8.37	Sqm	□ 761.40	□ 6,372.91
8.6	RCC Beam	1.32	Cum.	□ 10,525.40	□ 13,893.52
8.7	RCC Slab	3.61	Cum.	□ 9,002.10	□ 32,497.58
9	Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or Tor steel confirming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge confirming to I.S. 280 (galvanized minimum 1 mm) and cost of all labour, labour cess, all T&P required for the work etc. complete as directed by the Engineer- in-Charge-	17.09	Qtl.	□ 5,728.80	□ 97,905.19
10	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:6) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Foundation and Plinth) .	4.96	Cum.	□ 4,267.00	□ 21,164.32
11	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Super Structure) .	14.25	Cum.	□ 4,300.30	□ 61,279.27
12	Supplying, fabricating, erection of MS Structural Steel Member including cost, conveyance, royalty, taxes of all materials, labor, labour cess, T&P etc. required for the work etc complete as per the direction of the Engineer-in-charge.	2.997	Qtl.	□ 7,706.80	□ 23,097.27

13	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-Charge.	36.14	Sqm.	□ 288.30	□ 10,419.16
14	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	76.38	Sqm	□ 195.30	□ 14,917.01
15	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	93.70	Sqm	□ 137.60	□ 12,893.12
15	Providing 6 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	44.09	Sqm	□ 151.10	□ 6,661.99
16	Fixing ceramic tiles in floors treads or steps and landing on 25 mm thick bed of CM (1:1) [1 cement : 1 sand] jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and completefinished in all respect including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge.	25.96	Sqm.	□ 750.80	□ 19,490.76

17	Fixing ceramic tiles in dado skirting and risers of steps on 12 mm thick C.P (1:3) including cost of all and complete finished jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and complete finished in all respect including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge.	4.41	Sqm.	₹ 732.10	₹ 3,228.56
18	Painting two coats over a coat of primer over new steel work including cost of all and complete with cost of all materials taxes, labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge.	9.99	Sqm	₹ 187.50	₹ 1,873.12
19	Finishing plastered surfaces of walls with wall primer and making smooth to receive painting including cost of all and complete including cost of paint with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	214.17	Sqm	₹ 29.80	₹ 6,382.26
20	Distempering to walls with distemper of approved shade on new work two coats to give an even shade including cost of all and complete including cost of all & finished in all respect including cost of all and complete as per the direction of the Engineer-in-charge.	214.17	Sqm	₹ 64.10	₹ 13,728.29
21	Finishing walls with weather coat (100% Acrylic Emulsion Paint) (1st quality) of approved shade on new work two coats over a coat wall primer to give an even shade including cost of all and complete including cost of paint with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	78.94	Sqm	₹ 64.80	₹ 5,115.31
22	Labour for drilling a perfectly vertical bore hole of a specified dia for a specified depth below ground level in alluvial soil strata by mud Rotary Rig drilling as required to suit the site condition as per the direction of Engineer-in-charge including use of own rigs with its accessories, tools and plant and consumables etc. for lowering of finished bore suitable for lowering of 200mm dia GI/PVC pipes for housing, fitted with socket and with or without well screen as per the necessity for the soft, medium, hard and boulder formation (GI/PVC casing pipes if required by the contractor to prevent collapse of over burden portion) including lower and withdrawing of casing pipe after drilling 200mm to 450mm ia in over burden portion.	30.00	Mtr	₹ 789.00	₹ 23,670.00

23	Supply of all labour & T&P for Lowering the following size G.I/PVC Pipes with or without slotted pipes as per the necessity from ground level and fitted up in perfectly vertical position, including cutting and threading pipe and slotted pipe and fixing all jointing materials etc. complete and keeping the top of the casing pipe threaded including plugging tube wells to prevent entry of foreign from above excluding cost of fittings & jointing materials.	30.00	Mtr	□ 182.60	□ 5,478.00
24	Cleaning and developing the tube well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply an use of all necessary equipment and labour as per the direction of Engineer-in-Charge.	1.00	Nos.	□ 6,690.10	□ 6,690.10
25	Supplying all labour, T&P and materials for Packing the bore with washed gravel (size P-6) around the pipes in good quality excluding cost of grovel etc. Complete as per the direction of the direction of the Engineer-in-charge.	1.00	Mtr	□ 2,221.15	□ 2,221.15
26	Supplying all materials labour and T&P and grouting with cement slurry for Sanitary Sealing around the GI/PVC casing pipe upto 3mtr. Below ground level including cost of cement all complete as per the direction of Engineer-in-charge.	1.00	Nos.	□ 3,029.70	□ 3,029.70
27	Supplying all materials, labour, tools and plant and withdrawing casing pipes from the unsuccessful bore and depositing in the departmental store in good condition.	30.00	Mtr	□ 251.20	□ 7,536.00
28	Providing supplying fitting and fixing of 5 HP 3 Phase oilfitted 100mm dia borewell submergable pump set of KSB/ kirlosker/ crompton/texmo and other IS make with control pannel including 2.5sqmm three core PVC coated copper flat cable, 32mm dia HDPE pipe / nipple / bolt and PVC coated 6mm wire rope , U bolt , M.S clamp with all labour, T&P, taxes as applicable at site as per specification and direction of engineer in charge.	1.00	Nos.	□ 48,865.00	□ 48,865.00
29	Construction of LT 3 Ph 4way line with 3x35x1x25sqmm XLPE AB Cable	0.30	Km	□ 3,23,283.92	□ 96,985.17
30	Supply of PVC armored cables ISI marked.(Make- Glowstar/Polycab/Nicco/KEI/HPL/Mescab	30.00	Mtr	□ 157.14	□ 4,714.20
31	Laying of Cable on wall surface with steel shaddle	30.00	Mtr	□ 55.35	□ 1,660.50
32	Supply and making and termination with brass compression gland and aluminium logs for PVC insulated and PVC sheathed aluminium cable of 1.1kv grade (without cost of cable)	2.00	Set	□ 152.67	□ 305.34

33	Supply, installation, testing and commissioning of OUTDOOR panel board with one coat of powder coating weather resistant enamel paint with danger board. 16/18 SWG panel box L X B X 5"= sq. inch for single door made out of CR sheet of 16SWG and boarder angle frame to provide above panel with proper space ,hinged door must be painted one coated red oxide and two coat enamel gray paint	2880.00	Sq. Inch	□ 1.34	□ 3,859.20
33.1	Supply and fixing of internal wiring to equipment installed in the panel board with required size of copper multistrand single core cables duly crimped with copper lugs and all connections L X B including cost of copper conductor and other fittings	2880.00	Sq. Inch	□ 0.77	□ 2,217.60
34	Supply and fixing of Ammeter with selector switch including all connections.	1.00	Nos.	□ 1,248.21	□ 1,248.21
35	Supply and fixing of voltmeter with selector switch including all connections	1.00	Nos.	□ 1,248.21	□ 1,248.21
36	Supply and fixing of Indicator lamp with toggler switch and fuse	3.00	Nos.	□ 216.07	□ 648.21
37	Supply and fixing of C.T coil upto 400Amp including all connections	3.00	Nos.	□ 767.85	□ 2,303.55
38	Supply and fixing of TPN switch disconnecter fuse (panel mounted type with ISI marked HRC fuse). Supply and fixing of 100Amp TPN switch disconnecter fuse/capacitor (panel mounted type with ISI marked HRC fuse).	1.00	Nos.	□ 4,533.92	□ 4,533.92
39	Supply and fixing of 4pole MCCB in cubicle panel board 160AMP 16KA.	1.00	Nos.	□ 5,984.42	□ 5,984.42
40	Supply, installation, testing and commissioning INDOOR panel board with danger board Base channel 50 X 50 X 8mm with base concreting including connection and testing.	25.00	Mtr	□ 98.21	□ 2,455.25
41	Providing, supplying, fitting, fixing of Modular Solar LED Street Light with cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.	12.00	Nos.	□ 9,200.00	□ 1,10,400.00
42	Rigged smooth centering and shuttering for RCC works including false works and dismantling them after casting including staggging, cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.				
42.1	PCC Wall	277.68	Sqm	□ 603.18	□ 1,67,491.02
42.2	PCC Base	34.98	Sqm	□ 109.38	□ 3,826.11

43	Providing weep hole in brick masonry /plain/reinforcement concrete abutment/wing wall / return wall with 100 mm dia AC pipe extending through the full width of the structure with slope 1(V) to 20(H) towards drawing face etc complete including cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.	52.06	Rmt	□ 105.00	□ 5,466.30
				Total.	□ 21,21,866.96
	TOTAL= 43 (FORTY THREE) ITEMS ONLY			Or Say.	□ 21,21,867.00
(RUPEES TWENTY ONE LAKHS TWENTY ONE THOUSAND EIGHT HUNDRED SIXTY SEVEN) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

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APPROVED

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack**

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TENDER OPENING OFFICER

BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF BARKOTE FISH FARM IN
DEOGARH DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 36,69,218.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

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TENDER OPENING OFFICER

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TENDER OPENING OFFICER

**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, DEOGARH** for the work “**DEVELOPMENT OF BARKOTE FISH FARM IN DEOGARH DISTRICT**” from “**B & C**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 36,69,218.00**

02. The tenderer should please note that the work will have to be completed within **08 [EIGHT] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 36,700.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

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07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and super scribed for the work **“DEVELOPMENT OF BARKOTE FISH FARM IN DEOGARH DISTRICT”** In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, DEOGARH** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
- (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{D1}{D2} \times K2$$

100 D1

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work, embankment work etc.	20%	60%	5%	15%
R & B Work :				
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian / Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries / Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C. Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot end of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.-1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in-charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

CONTRACTOR

TENDER OPENING OFFICER

32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all and sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

a. Complete details of earthing electrodes, earthing station and earthing conductors b.

Details of conduit supports

c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood the certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those includes in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick\identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down I the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal fame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

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SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

CONTRACTOR

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SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

- | | | | |
|----|----|--|----------------|
| 1. | a) | Is the bidder currently involved litigation relating to the works. | Yes /No in any |
| | b) | If yes: give details: | |
| 2. | | Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. | Yes /No |
| 3. | a) | Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. | Yes /No |
| | b) | If yes, give details: | |

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

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SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

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**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF BARKOTE FISH FARM IN
DEOGARH DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 36,69,218.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

\

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BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF BARKOTE FISH FARM IN DEOGARH DISTRICT

SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Earthwork in hard soil for excavation of foundation with initial lead and lift including dressing and leveling the beds etc.complete finished including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge.	274.50	Cum.	□ 181.80	□ 49,904.10
2	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer.	171.24	Cum.	□ 416.50	□ 71,321.46
3	Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as	12.04	Cum.	□ 4,358.60	□ 52,477.54
4	P.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect	20.40	Cum.	□ 4,608.00	□ 94,003.20

5	R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.	125.12	Cum.	□ 4,949.20	□ 6,19,243.90
5.1	Base of Column- First Floor	5.51	Cum.	□ 5,029.60	□ 27,713.10
6	Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or Tor steel confirming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge confirming to I.S. 280 (galvanized minimum 1 mm) and cost of all labour, labour cess, all T&P required for the work etc. complete as directed by the Engineer- in-Charge - Ground Floor	150.14	Qtl.	□ 5,738.70	□ 8,61,608.42
6.1	First Floor	6.61	Qtl.	□ 5,761.60	□ 38,084.18
7	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge	6.14	Cum.	□ 4,411.30	□ 27,085.38
8	Rigid smooth centering and shuttering for R.C.C. works including false works and dismantling then after casting in all floors & all heights including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer-In-Charge - Ground Floor- Base	68.00	Sqm	□ 104.13	□ 7,080.84
8.1	Tie Beam & Roof Beam	27.20	Sqm	□ 723.83	□ 19,688.18
8.2	Roof Slab	19.00	Sqm	□ 428.81	□ 8,147.39
8.3	RCC Wall	337.00	Sqm	□ 621.64	□ 2,09,492.68
8.4	RCC Staircase	12.00	Sqm	□ 591.07	□ 7,092.84
8.5	First Floor- Column	5.80	Sqm	□ 868.60	□ 5,037.88
8.6	Beam	6.50	Sqm	□ 868.60	□ 5,645.90
8.7	Lintel Beam	3.00	Sqm	□ 320.81	□ 962.43
8.8	Roof Slab	27.50	Sqm	□ 514.57	□ 14,150.68

9	Providing rigid shuttering with the box type steel shuttering plates with keys for intermediate const. Joints in rafts of weirs, barrages and dam blocks including cost of all materials, labour, T & P, etc complete as directed by the Engineer-in-Charge including removal of forms including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge.	400.00	Sqm	□ 181.20	□ 72,480.00
10	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge	391.00	Sqm	□ 152.50	□ 59,627.50
11	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-	64.00	Sqm	□ 282.50	□ 18,080.00
11.1	First Floor	25.00	Sqm	□ 309.40	□ 7,735.00
12	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	12.77	Sqm	□ 195.60	□ 2,497.81
13	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	12.77	Sqm	□ 137.10	□ 1,750.77

14	Providing 6 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as	25.00	Sqm	□ 153.20	□ 3,830.00
15	Supplying, fabricating, erection of MS Structural Steel Member including cost, conveyance, royalty, taxes of all materials, labor, labour cess, T&P etc. required for the work etc complete as per the direction of the Engineer-in-charge.	29.38	Qtl.	□ 7,719.20	□ 2,26,790.10
16	Painting two coats over a coat of primer over new steel work including cost of all and complete with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	227.13	Sqm	□ 188.20	□ 42,745.87
17	Finishing plastered surface of walls with wall primer and making smooth to receive painting including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. complete as directed by Engineer-In-Charge.	50.54	Sqm	□ 27.50	□ 1,389.85
18	Finishing walls with water proofing cement paint of approved shade on old work one coat to give and even shade including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer- in-Charge.	50.54	Sqm	□ 33.40	□ 1,688.04
19	Dewatering using 5.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	416.66	Hour	□ 144.35	□ 60,144.87
20	Installation of 100 KVA Sub Station & 3 Phase 11 KV O.H.T Line Extension	1.00	No.	□ 8,00,684.25	□ 8,00,684.25
21	Kirloskar KOS-822+ 7.5 HP [3 Phase] Openwell Submersible Pump	2.00	Nos.	□ 33,517.00	□ 67,034.00

22	Providing, supplying, fitting, fixing of Modular Solar LED Street Light with cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.	20.00	Nos.	□ 9,200.00	□ 1,84,000.00
				Total.	□ 36,69,218.14
	TOTAL= 22 (TWENTY TWO) ITEMS ONLY			Or Say.	□ 36,69,218.00
	(RUPEES THIRTY SIX LAKHS SIXTY NINE THOUSAND TWO HUNDRED EIGHTEEN) ONLY				
	RATE QUOTED BY THE TENDERER				
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

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APPROVED

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack**

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BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF BOUDH FISH FARM IN
BOUDH DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 43,31,998.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

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**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, BOUDH** for the work “**DEVELOPMENT OF BOUDH FISH FARM IN BOUDH DISTRICT**” from “**B & A**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 43,31,998.00**

02. The tenderer should please note that the work will have to be completed within **08 [EIGHT] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 43,400.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

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07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and superscribed for the work “**DEVELOPMENT OF BOUDH FISH FARM IN BOUDH DISTRICT**” In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, BOUDH** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
- (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R \ 2 \times R \times (12-D1)}{100 \quad D1}$$

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials. labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work embankment work etc. e	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials. labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

CONTRACTOR

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries /Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C, Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot end of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.- 1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in- charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all and sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

a. Complete details of earthing electrodes, earthing station and earthing conductors b.

Details of conduit supports

c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

1. a) Is the bidder currently involved litigation relating to the works. Yes /No in any
- b) If yes: give details:
2. Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. Yes /No
3. a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. Yes /No
- b) If yes, give details:

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

CONTRACTOR

TENDER OPENING OFFICER

**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

**BILL OF
QUANTITY FOR
THE WORK**

**“DEVELOPMENT OF BOUDH FISH FARM IN
BOUDH DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 43,31,998.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

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CONTRACTOR

TENDER OPENING OFFICER

BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF BOUDH FISH FARM IN BOUDH DISTRICT					
SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Providing rigid shuttering with the box type steel shuttering plates with keys for intermediate const. Joints in rafts of weirs, barrages and dam blocks including cost of all materials, labour, T & P, etc complete as directed by the Engineer-in-Charge including removal of forms. I. Wter Supply from Mahanadi- 384.00 Sqm. Total. 384.00 Sqm.	384.00	Sqm.	□ 181.20	□ 69,580.80
2	Dewatering using 20.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge. I. Wter Supply from Mahanadi- 672.00 Hour. Total. 672.00 Hour.	672.00	Hour	□ 167.60	□ 1,12,627.20
3	Earthwork in all kinds of soil with initial lead and lift including rough dressing and breaking the clods to maximum 5cm to 7cm in size and laying the layers notexceeding 0.30m in depth as per specification and approved by the department. I. Guard wall- 10.80 Cum. Total. 10.80 Cum.	10.80	Cum.	□ 196.70	□ 2,124.36
4	Earthwork in ordinary soil with initial lead and lift including rough dressing and breaking the clods to maximum 5cm to 7cm in size and laying the layers notexceeding 0.30m in depth as per specification and approved by the department. I. Water Supply from Mahanadi- 441.14 Cum. Total. 441.14 Cum.	441.14	Cum.	□ 112.80	□ 49,760.59
5	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer-in-Charge. I. Water supply from Mahanadi- 315.89 Cum. II. Guard Wall- 3.60 Cum. Total. 319.49 Cum.	319.49	Cum.	□ 283.20	□ 90,479.56
6	Labour for filling of empty cement bags sewing & laying under water in position including cost of all materials, labour, T & P, etc complete as directed by the Engineer-in-Charge. I. Water supply from Mahanadi- 10,240.00 Nos. Total. 10,240.00 Nos.	10240.00	100 Nos.	□ 101.54	□ 10,397.69

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7	<p>Providing empty cement bags at the site including cost carriage, etc complete finished in all respect including cost of all materials, labour, T & P, etc complete as directed by the Engineer-in-Charge.</p> <p>I. Water supply from Mahanadi- 10,240.00 Nos.</p> <p>Total. 10,240.00 Nos.</p>	10240.00	100 Nos.	□ 268.29	□ 27,472.89
8	<p>Back filling behind abutment, wing wall and return wall from excavated materials complete as per drawing and technical solutions including cost of all materials, labour, T & P, etc complete as directed by the Engineer-in-Charge.</p> <p>I. Water supply from Mahanadi- 99.00 Cum.</p> <p>Total. 99.00 Cum.</p>	99.00	Cum.	□ 289.80	□ 28,690.20
9	<p>Excavation of hard rock of all toughness in canal and cutoff trench of earth dam and other deep cutting sections by mechanical drilling & appropriate blasting with all lifts and dilifts, loading into and transportation by transport vehicle within 1 Km of initial lead and depositing the excavated materials neatly in specified dump yard as directed by EIC and trimming of bed and slope to the design finished section by manually, if necessary complete. (Recovery of useful materials of all sizes will normally be 0.70 Cum per Cum of excavation measured in dump condition. In case of change of recovery due to rock condition, percentage is to be fixed by Chief EIC).</p> <p>I. Water supply from Mahanadi- 498.96 Cum.</p>	498.96	Cum.	□ 206.50	□ 1,03,035.24
10	<p>Preparation of bed of foundation by wedging and barring in hard rock including removal of loose rock complete and disposal of muck by mechanical means within initial lead & lift as directed by the Engineer-in-charge.</p> <p>I. Water supply from Mahanadi- 25.20 Cum.</p> <p>Total. 25.20 Cum.</p>	25.20	Cum.	□ 1,688.40	□ 42,547.68
11	<p>Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge.</p> <p>I. Water Supply from Mahanadi- 65.80 Cum.</p> <p>II. Guard Wall- 1.80 Cum.</p> <p>Total. 67.60 Cum.</p>	67.60	Cum.	□ 4,223.40	□ 2,85,501.84

12	R.C.C.in M-25 using 20mm and downgraded HGCB chips including all cost and complete .(Rate 15 cum) including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge. Ground Floor & Upto 1.50 M depth I. Water Supply from Mahanadi- 58.89 Cum. Total. 58.89 Cum.	58.89	Cum.	□ 4,767.70	□ 2,80,769.85
12.1	Below 1.50 M To 4.50 M Depth I. Water Supply from Mahanadi- 67.29 Cum. Total. 67.29 Cum.	67.29	Cum.	□ 4,848.10	□ 3,26,228.64
13	Providing reinforcement including labour charge for cutting bending binding of HYSD bars tying the grills placing in position including cost of bending work and cost of M.S rod including all cost & complete.(Rate for 10 Qtl) Ground Floor & Upto 1.50 M depth I. Water Supply from Mahanadi- 67.72 Qtl. II.Renovation of Labortary, Hatchery- 0.32 Qtl. Total. 68.04 Qtl.	68.04	Qtl.	□ 5,727.20	□ 3,89,678.68
13.1	Below 1.50 M To 4.50 M Depth I. Water Supply from Mahanadi- 77.38 Qtl. II.Renovation of Labortary, Hatchery- 0.32 Qtl. Total. 77.70 Qtl.	77.70	Qtl.	□ 5,750.10	□ 4,46,782.77
14	Fixing 25 MM Ø anchor bars in foundation rock including drilling 35 MM Ø holes, fixing wedged anchor and grouting with cement mortar 1:4 complete as per the direction of EIC excluding cost of MS rods fro dams, barrages and power house structures including pull testing of 30% of anchors. (Depth of hole only to be measured for payment purpose) I. Water Supply from Mahanadi- 267.00 Rmt. Total. 267.00 Rmt.	267.00	Rmt.	□ 351.30	□ 93,797.10
15	Rigid smooth centering and shuttering for R.C.C. works including false works and dismantling then after casting in all floors & all heights including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer-In-Charge. Below 1.50 M to 7.50 M Depth- Base I. Water Supply from Mahanadi- 33.12 Sqm. Total. 33.12 Sqm.	33.12	Sqm.	□ 119.80	□ 3,967.77
15.1	Base I. Guard Wall- 12.99 Sqm. Total. 12.99 Sqm.	12.99	Sqm.	□ 99.79	□ 1,296.27
15.2	Wall I. Water Supply from Mahanadi- 128.61 Sqm. Total. 128.61 Sqm.	128.61	Sqm.	□ 734.81	□ 94,503.91

15.3	Wall- Ground Floor & Upto 1.50 M Depth I. Water Supply from Mahanadi- 132.00 Sqm. II. Guard Wall- 30.00 Sqm. Total. 162.00 Sqm.	162.00	Sqm.	□ 612.35	□ 99,200.70
15.4	Tie Beam I. Water Supply from Mahanadi- 47.52 Sqm. Total. 47.52 Sqm.	47.52	Sqm.	□ 715.64	□ 34,007.21
15.5	Roof Slab of Collection Chamber I. Water Supply from Mahanadi- 37.70 Sqm. Total. 37.70 Sqm.	37.70	Sqm.	□ 420.89	□ 15,867.55
15.6	Chajja I. Water Supply from Mahanadi- 1.95 Sqm. Total. 1.95 Sqm.	1.95	Sqm.	□ 420.89	□ 820.73
15.7	Column I. Water Supply from Mahanadi- 12.00 Sqm. Total. 12.00 Sqm.	12.00	Sqm.	□ 715.64	□ 8,587.68
15.8	Column Foundation I. Water Supply from Mahanadi- 14.40 Sqm. Total. 14.40 Sqm.	14.40	Sqm.	□ 99.79	□ 1,436.97
15.9	Plinth Beam I. Water Supply from Mahanadi- 7.20 Sqm. Total. 7.20 Sqm.	7.20	Sqm.	□ 99.79	□ 718.48
16	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge. (Super Structure) I. Water Supply from Mahanadi- 6.62 Cum. II. Renovation of Labortary, Hatchery- 4.12 Cum. Total. 10.74 Cum.	10.74	Cum.	□ 3,774.60	□ 40,539.20
17	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge- Ground Floor. I. Water Supply from Mahanadi- 38.85 Sqm. II. Renovation of Labortary, Hatchery- 187.77 Sqm. Total. 226.62 Sqm.	226.62	Sqm.	□ 188.00	□ 42,604.56
17.1	First Floor. I. Renovation of Labortary, Hatchery- 187.77 Sqm. Total. 187.77 Sqm.	187.77	Sqm.	□ 192.70	□ 36,183.27

18	<p>Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.</p> <p>Ground Floor, I. Water Supply from Mahanadi- 38.85 Sqm. II. Renovation of Labortary, Hatchery- 81.69 Sqm.</p>	120.54	Sqm.	□ 131.50	□ 15,851.01
18.1	<p>First Floor. I. Renovation of Labortary, Hatchery- 72.45 Sqm. Total. 72.45 Sqm.</p>	72.45	Sqm.	□ 134.60	□ 9,751.77
19	<p>Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.</p> <p>Ground Floor, I. Renovation of Labortary, Hatchery- 489.76 Sqm.</p>	489.76	Sqm.	□ 149.70	□ 73,317.07
20	<p>Providing 6 mm thick cement plaster in cement mortar of prop 1:4 over RCC work finished smooth including cost of all and complete finished in all respect complete finished with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.</p> <p>I. Water Supply from Mahanadi- 11.79 Sqm. Total. 11.79 Sqm.</p>	11.79	Sqm.	□ 148.10	□ 1,746.09
21	<p>Finishing walls with water proofing cement paint of approved shade on old work one coat to give and even shade including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer- in-Charge.</p> <p>I. Water Supply from Mahanadi- 89.49 Sqm. Total. 89.49 Sqm.</p>	89.49	Sqm.	□ 30.90	□ 2,765.24

22	Supplying, fabricating, erection of MS Structural Steel Member including cost, conveyance, royalty, taxes of all materials, labor, labour cess, T&P etc. required for the work etc complete as per the direction of the Engineer-in-charge. I. Water Supply from Mahanadi- 1.73 Qtl. Total. 1.73 Qtl.	1.73	Qtl.	□ 7,706.80	□ 13,332.76
23	Painting two coats over a coat of primer to New/Old steel works of approved make and shade to make an even shade after preparing the surface smooth by means of sand papering & applying putty wherever necessary in all floors with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. complete as directed by Engineer-In-Charge. I. Water Supply from Mahanadi- 11.13 Sqm. Total. 11.13 Sqm.	11.13	Sqm.	□ 188.20	□ 2,094.66
24	Laying in trenches H.D.P.E [P.E] pipes conforming to IS:4984-2016 and specials of the following outside diameter for all classes including jointing with supply of approved solvent cement by non-heat application method including testing as per specification complete. (Earth work in trenches to be measured and paid for separately) 90 mm dia H.D.P.E [P.E] pipe SDR-21 [6.0 Kgf/cm²] I. Water Supply from Mahanadi- 120.00 Mtr. Total. 120.00 Mtr.	120.00	Mtr.	□ 419.00	□ 50,280.00
24.1	140 mm dia rigid UPVC pipe SDR-21 [6.0 Kgf/cm²] I. Water Supply from Mahanadi- 103.00 Mtr. Total. 103.00 Mtr.	103.00	Mtr.	□ 639.00	□ 65,817.00
25	Fixing of Butterfly Valve Agri . (Horizontal plunger type) conforming to IS 1703-1977 as per specification complete as per the direction of the Engineer-in-charge. 90 mm dia Butterfly Valve Agri [SUPREME] I. Water Supply from Mahanadi- 28.00 Nos. Total. 28.00 Nos.	28.00	Nos.	□ 3,278.30	□ 91,792.40
25.1	Fixing of Non return Valve Agri . (Horizontal plunger type) conforming to IS 1703-1977 as per specification complete as per the direction of the Engineer-in-charge. 110mm dia Non Return Valve [SUPREME] I. Water Supply from Mahanadi- 2.00 Nos. Total. 2.00 Nos.	2.00	Nos.	□ 7,028.40	□ 14,056.80
26	Supplying, installation & commissioning 7.5 HP submersible pump including control pannel including cost of all and complete finished in all respect. (Kirloskar Make) as per the direction of the Engineer-in-charge. I. Water Supply from Mahanadi- 2.00 Nos. Total. 2.00 Nos.	2.00	Nos.	□ 33,517.00	□ 67,034.00

27	Fabrication 3.00 m long filter stainer pipe 315 MM Ø outer casing and 250 MM Ø core casing sandwiched with one layer of 500 micron garware Geo-cloth and 6mm - 10mm size H.G.Chips, one end anchored to the collection chamber wall and other end anchored to the hard sub-strata using anchor bar reinforcement and RCC x M-25 complete in all respect as per the direction of the Engineer-in-charge. I. Water Supply from Mahanadi- 72.00 Nos. Total. 72.00 Nos.	72.00	3 Mtr.	□ 29,952.90	□ 7,18,869.60
28	Removing old lime or cement plaster from walls including racking out joints 12 mmdeep including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of fall and complete finished in all respect as per the direction of the Engineer-in-charge. I. Renovation of Laboratory, Hatchery- 1069.95 Sqm. Total. 1069.95 Sqm.	1069.95	Sqm.	□ 37.90	□ 40,551.10
29	Dismantling and removing A.S. flooring including stacking the useful materials & removing the debris away from the work site including cost of all labour, T&P, labour cess etc. required for the work complete in all respect as directed by Engineer-In-Charge. I. Renovation of Laboratory, Hatchery- 219.40 Sqm. Total. 219.40 Sqm.	219.40	Sqm.	□ 75.80	□ 16,630.52
30	Dismantling 2.50 cmsthick grading concrete from roof slab including cleaning the roof surface and lowering and removing the debris with 50.00m lead including cost of fall and complete finished in all respect etc. complete as directed by Engineer-In-Charge. I. Renovation of Laboratory, Hatchery- 69.75 Sqm. Total. 69.75 Sqm.	69.75	Sqm.	□ 85.30	□ 5,949.67
31	Dismantling and removing R.C.C chajjaha,shelves,fins etc. including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of fall and complete finished in all respect as directed by Engineer-In-Charge. I. Renovation of Laboratory, Hatchery- 13.44 Sqm.	13.44	Sqm.	□ 132.60	□ 1,782.14
32	Dismantling and removing cement concrete including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of fall and complete finished in all respect etc. complete as directed by Engineer-In-Charge. I. Renovation of Laboratory, Hatchery- 4.19 Sqm. Total. 4.19 Sqm.	4.19	Sqm.	□ 563.80	□ 2,362.32

33	P.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge. I. Renovation of Laboratory, Hatchery- 4.19 Cum. II. Guard Wall- 12.82 Cum. Total. 17.01 Cum.	17.01	Cum.	□ 4,433.40	□ 75,412.13
34	R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge. RCC Chajja- Ground Floor I. Renovation of Laboratory, Hatchery- 6.72 Sqm. Total. 6.72 Sqm.	6.72	Sqm.	□ 740.10	□ 4,973.47
35.1	RCC Chajja- First Floor I. Renovation of Laboratory, Hatchery- 6.72 Sqm. Total. 6.72 Sqm.	6.72	Sqm.	□ 837.70	□ 5,629.34
36	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-Charge- Ground Floor I. Renovation of Laboratory, Hatchery- 8.64 Sqm. Total. 8.64 Sqm.	8.64	Sqm.	□ 278.00	□ 2,401.92
36.1	First Floor I. Renovation of Laboratory, Hatchery- 61.11 Sqm. Total. 61.11 Sqm.	61.11	Sqm.	□ 304.90	□ 18,632.43

37	Priming one coat with any approved primer over wood work including cost of all and complete with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. complete as directed by Engineer-In-Charge Ground Floor I. Renovation of Laboratory, Hatchery- 57.57 Sqm. Total. 57.57 Sqm.	57.57	Sqm.	□ 57.30	□ 3,298.76
37.1	First Floor I. Renovation of Laboratory, Hatchery- 57.57 Sqm. Total. 57.57 Sqm.	57.57	Sqm.	□ 58.70	□ 3,379.35
38	Finishing plastered surfaces of walls with wall primer and making smooth to receive painting including cost of all and complete with cost of all materials taxes, labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge Ground Floor. I. Renovation of Laboratory, Hatchery- 269.46 Sqm. Total. 269.46 Sqm.	269.46	Sqm.	□ 27.50	□ 7,410.15
38.1	First Floor I. Renovation of Laboratory, Hatchery- 260.22 Sqm. Total. 260.22 Sqm.	260.22	Sqm.	□ 27.90	□ 7,260.13
39	Wall painting two coats with 100% Acrylic emulsion paint (weather seal coat) exterior grade of approved make & shade manufactured by reputed manufacturer like NEROLAC / ASIAN / BERGER / DULOX or equivalent to make an even finished surface in all floors and heights with scaffolding and staging charges including cost, conveyance, taxes of all materials, cost of all labours, labour cess, T & P, sundries etc. as required for the work complete in all respect as per the direction of the Engineer-in-Charge. Ground Floor. I. Renovation of Laboratory, Hatchery- 81.69 Sqm.	81.69	Sqm.	□ 66.80	□ 5,456.89
39.1	First Floor I. Renovation of Laboratory, Hatchery- 72.45 Sqm. Total. 72.45 Sqm.	72.45	Sqm.	□ 67.40	□ 4,883.13
40	Distemping to walls with distemper of approved shade on old work one coat to give an even shade of approved make & shade manufactured by reputed manufacturer like NEROLAC / ASIAN / BERGER / DULOX or equivalent including cost, conveyance, taxes of all materials, cost of all labours, labour cess, T & P, sundries etc. as required for the work complete in all respect as per the direction of the Engineer-in-Charge. Ground Floor. I. Renovation of Laboratory, Hatchery- 187.77 Sqm. Total. 187.77 Sqm.	187.77	Sqm.	□ 64.30	□ 12,073.61
40.1	First Floor. I. Renovation of Laboratory, Hatchery- 187.77 Sqm. Total. 187.77 Sqm.	187.77	Sqm.	□ 65.80	□ 12,355.26

41	Fixing tiles in floors treads or steps and landing on 25 mm thick bed of CM(1:1) [1 cement : 1 sand] jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and complete finished in all respect including cost, conveyance, taxes of all materials, cost of all labours, labour cess, T & P, sundries etc. as required for the work complete in all respect as per the direction of the Engineer-in-Charge. Ground Floor. I. Renovation of Laboratory, Hatchery- 4.32 Sqm. Total. 4.32 Sqm.	4.32	Sqm.	□ 755.50	□ 3,263.76
41.1	First Floor. I. Renovation of Laboratory, Hatchery- 4.32 Sqm. Total. 4.32 Sqm.	4.32	Sqm.	□ 765.00	□ 3,304.80
42	Fixing tiles in dado skirting and risers of steps on 12 mm thick C.P (1:3) including cost of all and complete finished jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and complete finished in all respect including cost, conveyance, taxes of all materials, cost of all labours, labour cess, T & P, sundries etc. as required for the work complete in all respect as per the direction of the Engineer-in-Charge. Ground Floor. I. Renovation of Laboratory, Hatchery- 17.64 Sqm. Total. 17.64 Sqm.	17.64	Sqm.	□ 731.50	□ 12,903.66
42.1	First Floor. I. Renovation of Laboratory, Hatchery- 17.64 Sqm. Total. 17.64 Sqm.	17.64	Sqm.	□ 745.80	□ 13,155.91
43	Providing Weep Holes in brick masonry/plain reinforcement concrete abutment/wing wall/return wall with 100mm dia AC pipe extending through the full width of the structure with slope towards drawing face including royalty and all taxes of the materials and cost of all labour, labour CESS T&P and scaffolding require to complete the work and finished in all respect in all heights as per the direction of the Engineer-in-charge. I. Guard Wall- 9.00 Rmt. Total. 9.00 Rmt.	9.00	Rmt.	□ 104.60	□ 941.40
44	Supply of all labour & T&P for Lowering the following size G.I/PVC Pipes with or without slotted pipes as per the necessity from ground level and fitted up in perfectly vertical position, including cutting and threading pipe and slotted pipe and fixing all jointing materials etc. complete and keeping the top of the casing pipe threaded including plugging tube wells to prevent entry of foreign from above excluding cost of fittings & jointing materials.	50.00	Mtr	□ 182.60	□ 9,130.00

45	Cleaning and developing the tube well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply an use of all necessary equipment and labour as per the direction of Engineer-in-Charge.	1.00	Nos.	₹ 6,690.10	₹ 6,690.10
46	Supplying all materials, labour, tools and plant and withdrawing casing pipes from the unsuccessful bore and depositing in the departmental store in good condition.	30.00	Mtr.	₹ 251.20	₹ 7,536.00
47	Supplying all labour, T&P and materials for Packing the bore with washed gravel (size P-6) around the pipes in good quality excluding cost of gravel etc. complete as per the direction of the Engineer-in-charge.	1.00	Nos.	₹ 2,221.15	₹ 2,221.15
48	Supplying all materials labour and T&P and grouting with cement slurry for Sanitary Sealing around the GI/PVC casing pipe up to 3 mtrs. Below ground level including cost of cement all complete as per the direction of Engineer-in-charge.	1.00	Nos.	₹ 3,029.70	₹ 3,029.70
49	Providing supplying fitting and fixing of 5 HP Single Phase oilfitted 100mm dia borewell submergable pump set of KSB/ kirlosker/ crompton/texmo and other IS make with control pannel including 2.5sqmm three core PVC coated copper flat cable, 32mm dia HDPE pipe / nipple / bolt and PVC coated 6mm wire rope , U bolt , M.S clamp with all labour, T&P, taxes as applicable at site as per specification and direction of engineer in charge.	1.00	Nos.	₹ 48,865.00	₹ 48,865.00
50	Supply of PVC armored cables ISI marked.(Make-Glowstar/ Polycab/ Nicco/KEI/HPL/ Mescab	30.00	Mtr	₹ 157.14	₹ 4,714.20
51	Laying of Cable on wall surface with steel shaddle	30.00	Mtr	₹ 55.35	₹ 1,660.50
52	Supply and making and termination with brass compression gland and aluminium logs for PVC insulated and PVC sheathed aluminium cable of 1.1kv grade (without cost of cable)	2.00	Set	₹ 152.67	₹ 305.34
53	Supply, installation, testing and commissioning of OUTDOOR pannel board with one coat of powder coating wheather resistant enamel paint with danger board. 16/18 SWG pannel box L X BX 5"= sq. inch for single door made out of CR sheet of 16SWG and boarder angle frame to provide above pannel with proper space ,hinged door must be painted one coated red oxide and two coat enamel gray paint	2880.00	Sq. Inch	₹ 1.34	₹ 3,859.20
53.1	Supply and fixing of internal wiring to equipment installed in the pannel board with required size of copper multistrand single core cables duly crimped with copper lugs and all connections L X B including cost of copper conductor and other fittings	2880.00	Sq. Inch	₹ 0.77	₹ 2,217.60
54	Supply and fixing of 4pole MCCB in cubicle pannel board 160 AMP 16 KA.	1.00	Nos.	₹ 5,984.42	₹ 5,984.42

55	Supply, installation, testing and commissioning INDOOR pannel board with danger board Base channel 50 X 50 X 8mm with base concreting including connection and testing.	30.00	Mtr	□ 98.21	□ 2,946.30
56	Providing and fixing of on wall face UPVC soil waste and rain water pipes conforming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes 75MM dia (40 kg/cm² UPVC Pipe)	35.00	Mtr.	□ 182.10	□ 6,373.50
57	Supplying all materials labour and T& P fixing Brass/Gunmetal full way valve confirming to IS:781-1995 of the following nominal sizes as per the direction of Engineer-in-charge. 65mm dia brass/ gun metal fuul way valve	2.00	Nos.	□ 5,341.20	□ 10,682.40
58	Dewatering using 5.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	20.50	Hour	□ 51.30	□ 1,051.65
59	Excavation, loading, unloading and carriage by mechanical means of all kinds of soil, including stoney earth, gravel & muroom, etc. inteerspread with boulders upto 1/2 cum size with all lifts & delifts including trimming of slopes & bed to design section and depositing the excavated materials away from work site as per the direction of Engineer-in-Charge within an initial lead of 5KM from the place of excavation complete.	461.40	Cum.	□ 166.50	□ 76,823.10
60	Supplying all materials,labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar(1:4) for taking G.I. pipes and fittings /P.V.C. pipes and fittings all complete as per specification.				
	250 MM thick wall	2.00	Each	□ 44.00	□ 88.00
61	Providing and fixing to wall or ceiling and floor rigid PVC pipes conforming to ASTM-D-1785/89[Sch-80] and pipe fittings of the following nominal bore with clamps including making good the wall , ceiling and floor all complete as per specification.				
61.1	20mm. Diameter.	9.07	Mtr	□ 115.80	□ 1,050.30
61.2	32mm. Diameter	9.00	Mtr	□ 154.40	□ 1,389.60
62	Supplying all materials,labour and T&P for cutting groves in pucca floor and walls for taking G.I. pipes and fittings /P.V.C. pipes and fittings and making good to the amages all complete as per specification.				
		9.00	Mtr	□ 176.80	□ 1,591.20
63	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes.				
	75 mm diameter	9.00	Mtr	□ 182.10	□ 1,638.90

64	Supplying all labour and T&P for fixing long body bib cock of the following size as per specification all complete (including cost of cock)				
	15mm dia long body Bib cock	1.00	Nos.	₹ 754.40	₹ 754.40
65	Supplying fitting fixing of cromium plated CP over head shower rose with arm including polishing and complete as per specification.				
	Over head shower	2.00	Nos.	₹ 561.10	₹ 1,122.20
66	Providing and fixing on wall face unplastised rigid PVC moulded fittings / accessories for unplastidsied rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expantion.				
66.1	Plain Bend 87.5° 110mm diameter	1.00	Nos.	₹ 139.10	₹ 139.10
66.2	Door Bend 87.5° 110mm diameter	1.00	Nos.	₹ 204.70	₹ 204.70
				Total.	₹ 43,31,998.20
	TOTAL= 66 (SIXTY SIX) ITEMS ONLY			Or Say.	₹ 43,31,998.00
(RUPEES FORTY THREE LAKHS THIRTY ONE THOUSAND NINE HUNDRED NINETY EIGHT) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

CONTRACTOR

APPROVED

Executive Engineer (C)

CONTRACTOR

TENDER OPENING OFFICER

BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF DHENKANAL FISH FARM IN
DHENKANAL DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 20,33,306.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

CONTRACTOR

TENDER OPENING OFFICER

CONTRACTOR

TENDER OPENING OFFICER

**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, DHENKANAL** for the work “**DEVELOPMENT OF DHENKANAL FISH FARM IN DHENKANAL DISTRICT**” from “**C & B**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 20,33,306.00**

02. The tenderer should please note that the work will have to be completed within **04 [FOUR] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 20,400.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

CONTRACTOR

TENDER OPENING OFFICER

07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and superscribed for the work “**DEVELOPMENT OF DHENKANAL FISH FARM IN DHENKANAL DISTRICT**” In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, DHENKANAL** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
 23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
 24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
 - (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
 - (b) Paints.
 - (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
 - (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
 25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
 26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
 27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
 28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
 29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{D2}{D1} \times R \times (12-D1)$$

100 D1

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work embankment work etc. e	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. Sanitary fixtures:

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries /Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C, Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot and of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.-1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in-charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

CONTRACTOR

TENDER OPENING OFFICER

32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

- a. Complete details of earthing electrodes, earthing station and earthing conductors
- b. Details of conduit supports
- c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

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SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

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SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

1. a) Is the bidder currently involved litigation relating to the works. Yes /No in any
- b) If yes: give details:
2. Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. Yes /No
3. a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. Yes /No
- b) If yes, give details:

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

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SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

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**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF DHENKANAL FISH FARM IN
DHENKANAL DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 20,33,306.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

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BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF DHENKANAL FISH FARM IN DHENKANAL DISTRICT

SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Dewatering using 5.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	47.91	Hour	₹ 51.30	₹ 2,457.78
2	Excavation, loading, unloading and carriage by mechanical means of all kinds of soil, including stoney earth, gravel & muroom, etc interspread with boulders upto 1/2 cum size with all lifts & delifts including trimming of slopes & bed to design section and depositing the excavated materials away from work site as per the specification and as directed by the Engineer-in-Charge within an initial lead of 5 KM from the place of excavation complete.	3013.50	Cum.	₹ 166.50	₹ 5,01,747.75
3	Dismantalling brick or stone masonry in lime or cement mortar under 3 Mtr. height including stacking the useful materials for re-use and remove the debris within 50 mtr lead etc. complete as per the direction of the Engineer-in-charge.	4.61	Cum.	₹ 1,058.40	₹ 4,879.22
4	Dismantalling and removing of old lime or cement plaster from walls including racking out joints 12 mm deep and removing debris within 50 mtr lead etc. complete as per the direction of the Engineer-in-charge.	77.66	Sqm.	₹ 37.90	₹ 2,943.31
5	Dismantalling and removing of 2.5 cm thick A.S. Flooring including stacking the useful materials for re-use and remove the debris within 50 mtr lead etc. complete as per the direction of the Engineer-in-charge.	31.80	Sqm.	₹ 75.80	₹ 2,410.44
6	Earth work in all kind of soil in excavation of foundation including levelling the bed shoring and shuttering the foundation trench if required including cost of all and complete finished in all respect including cost of all and complete in all respect as per the direction of the Engineer-in-charge.	75.60	Cum	₹ 196.70	₹ 14,870.52
7	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer-in-Charge.	18.90	Cum.	₹ 372.00	₹ 7,030.80

8	Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge.	9.45	Cum.	□ 4,394.00	□ 41,523.30
9	R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.				
9.1	Base of Column	12.60	Cum.	□ 4,765.90	□ 60,050.34
9.2	RCC Wall	77.45	Cum.	□ 10,204.50	□ 7,90,338.52
10	Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or Tor steel confirming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge confirming to I.S. 280 (galvanized minimum 1 mm) and cost of all labour, labour cess, all T&P required for the work etc. complete as directed by the Engineer- in-Charge-	11.34	Qtl.	□ 5,730.30	□ 64,981.60

11	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:6) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Super structure) .	4.61	Cum.	₹ 4,080.10	₹ 18,809.26
12	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-Charge.	31.80	Sqm.	₹ 283.50	₹ 9,015.30
13	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	62.79	Sqm	₹ 189.60	₹ 11,904.98
14	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	29.00	Sqm	₹ 132.80	₹ 3,851.20
15	Painting two coats over a coat of primer over new steel work including cost of all and complete with cost of all materials taxes, labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge.	35.33	Sqm	₹ 134.50	₹ 4,751.88

16	Finishing plastered surfaces of walls with wall primer and making smooth to receive painting including cost of all and complete including cost of paint with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	292.38	Sqm	□ 27.50	□ 8,040.45
17	Distempering to walls with distemper of approved shade on new work two coats to give an even shade including cost of all and complete including cost of all & finished in all respect including cost of all and complete as per the direction of the Engineer-in-charge.	160.47	Sqm	□ 64.30	□ 10,318.22
18	Finishing walls with weather coat (100% Acrylic Emulsion Paint) (1st quality) of approved shade on new work two coats over a coat wall primer to give an even shade including cost of all and complete including cost of paint with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	131.91	Sqm	□ 66.80	□ 8,811.58
19	Providing weep holes of 100 mm dia AC pipes including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	108.00	Rmt	□ 101.60	□ 10,972.80
20	Labour for drilling a perfectly vertical bore hole of a specified dia for a specified depth below ground level in alluvial soil strata by mud Rotary Rig drilling as required to suit the site condition as per the direction of Engineer-in-charge including use of own rigs with its accessories, tools and plant and consumables etc. for lowering of finished bore suitable for lowering of 200mm dia GI/PVC pipes for housing, fitted with socket and with or without well screen as per the necessity for the soft, medium, hard and boulder formation (GI/PVC casing pipes if required by the contractor to prevent collapse of over burden portion) including lower and withdrawing of casing pipe after drilling 200mm to 450mm ia in over burden portion.	100.00	Mtr	□ 789.00	□ 78,900.00
21	Supply of all labour & T&P for Lowering the following size G.I/PVC Pipes with or without slotted pipes as per the necessity from ground level and fitted up in perfectly vertical position, including cutting and threading pipe and slotted pipe and fixing all jointing materials etc. complete and keeping the top of the casing pipe threaded including plugging tube wells to prevent entry of foreign from above excluding cost of fittings & jointing materials.	40.00	Mtr	□ 182.60	□ 7,304.00

22	Cleaning and developing the tube well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply an use of all necessary equipment and labour as per the direction of Engineer-in-Charge.	1.00	Nos.	₹ 6,690.10	₹ 6,690.10
23	Supplying all materials, labour, tools and plant and withdrawing casing pipes from the unsuccessful bore and depositing in the departmental store in good condition.	57.00	Mtr	₹ 251.20	₹ 14,318.40
24	Supplying all labour, T&P and materials for Packing the bore with washed gravel (size P-6) around the pipes in good quality excluding cost of gravel etc. complete as per the direction of the Engineer-in-charge.	1.00	Nos.	₹ 2,221.15	₹ 2,221.15
25	Supplying all materials labour and T&P and grouting with cement slurry for Sanitary Sealing around the GI/PVC casing pipe up to 3 mtrs. Below ground level including cost of cement all complete as per the direction of Engineer-in-charge.	1.00	Nos.	₹ 3,029.70	₹ 3,029.70
26	Providing supplying fitting and fixing of 5 HP 3 Phase oilfitted 100mm dia borewell submergable pump set of KSB/ kirlosker/ crompton/texmo and other IS make with control pannel including 2.5sqmm three core PVC coated copper flat cable, 32mm dia HDPE pipe / nipple / bolt and PVC coated 6mm wire rope , U bolt , M.S clamp with all labour, T&P, taxes as applicable at site as per specification and direction of engineer in charge.	1.00	Nos.	₹ 48,865.00	₹ 48,865.00
27	Construction of LT 3 Ph 4way line with 3x35x1x25sqmm XLPE AB Cable	0.10	Km	₹ 3,23,283.90	₹ 32,328.39
28	Supply of PVC armored cables ISI marked.(Make-Glowstar/Polycab/Nicco/KEI/HPL/Mescab	30.00	Mtr	₹ 157.14	₹ 4,714.20
29	Laying of Cable on wall surface with steel shaddle	30.00	Mtr	₹ 55.35	₹ 1,660.50
30	Supply and making and termination with brass compression gland and aluminium logs for PVC insulated and PVC sheathed aluminium cable of 1.1kv grade (without cost of cable)	2.00	Set	₹ 152.67	₹ 305.34
31	Supply, installation, testing and commissioning of OUTDOOR pannel board with one coat of powder coating wheather resistant enamel paint with danger board. 16/18 SWG pannel box L X BX 5"= sq. inch for single door made out of CR sheet of 16SWG and boarder angle frame to provide above pannel with proper space ,hinged door must be painted one coated red oxide and two coat enamel gray paint	14400.00	Sq. Inch	₹ 1.34	₹ 19,296.00

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32.0	Supply and fixing of internal wiring to equipment installed in the panel board with required size of copper multistrand single core cables duly crimped with copper lugs and all connections L X B including cost of copper conductor and other fittings	14400.00	Sq. Inch	□ 0.77	□ 11,088.00
33	Supply and fixing of Ammeter with selector switch including all connections.	1.00	Nos.	□ 1,248.21	□ 1,248.21
34	Supply and fixing of voltmeter with selector switch including all connections	1.00	Nos.	□ 1,248.21	□ 1,248.21
35	Supply and fixing of Indicator lamp with toggler switch and fuse	3.00	Nos.	□ 216.07	□ 648.21
36	Supply and fixing of C.T coil upto 400Amp including all connections	3.00	Nos.	□ 767.85	□ 2,303.55
37	Supply and fixing of TPN switch disconnecter fuse (panel mounted type with ISI marked HRC fuse). Supply and fixing of 100Amp TPN switch disconnecter fuse/capacitor (panel mounted type with ISI marked HRC fuse).	1.00	Nos.	□ 4,533.92	□ 4,533.92
38	Supply and fixing of 4pole MCCB in cubicle panel board 160AMP 16 KA.	1.00	Nos.	□ 5,984.42	□ 5,984.42
39	Supply, installation, testing and commissioning INDOOR panel board with danger board Base channel 50 X 50 X 8mm with base concreting including connection and testing.	25.00	Mtr	□ 98.21	□ 2,455.25
40	Supplying all materials, labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar (1:4) for taking G.I. pipes and fittings /PVC pipes and fittings all complete as per specification and direction of the engineer-in-charge	4.00	Nos.	□ 43.90	□ 175.60
41	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS:13592 type A including jointing with seal ring confirming to IS:5382 leaving 10 mm gape for thermal expansion single as per specification and direction of the Engineer-in-charge.				
41.1	75 Mm Diameter	65.00	Mtr	□ 182.10	□ 11,836.50
41.2	110 Mm Diameter	65.00	Mtr	□ 293.50	□ 19,077.50
42	Supplying all materials labour and T& P fixing Brass/Gunmetal full way valve confirming to IS:781-1995 of the following nominal sizes as per the direction of Engineer-in-charge. 65mm dia brass/ gun metal full way valve	4.00	Nos.	□ 5,341.20	□ 21,364.80

43	Providing, supplying, fitting, fixing of Modular Solar LED Street Light with cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.	10.00	Nos.	₹ 9,200.00	₹ 92,000.00
44	Providing, supplying, fitting, fixing of 5 HP Trolley Mounted Electric Pump of required size with all fittings, fixtures whatever necessary with cost, conveyance, royalties, taxes of all materials, labour, labour cess, T&P etc. required for the work complete in all respect as per the direction of the Engineer-in-charge.	1.00	Nos.	₹ 60,000.00	₹ 60,000.00
				Total.	₹ 20,33,306.20
	TOTAL= 44 (FORTY FOUR) ITEMS ONLY			Or Say.	₹ 20,33,306.00
(RUPEES TWENTY LAKHS THIRTY THREE THOUSAND THREE HUNDRED SIX) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

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APPROVED

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack**

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BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF M.RAMPUR FISH FARM IN
KALAHANDI DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 21,21,812.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

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**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KALAHANDI** for the work “**DEVELOPMENT OF M.RAMPUR FISH FARM IN KALAHANDI DISTRICT**” from “**C & B**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 21,21,812.00**

02. The tenderer should please note that the work will have to be completed within **04 [FOUR] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 21,300.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

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07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and super scribed for the work “**DEVELOPMENT OF M.RAMPUR FISH FARM IN KALAHANDI DISTRICT**” In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KALAHANDI** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
- (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{D2}{D1} \times R \times (12-D1)$$

100 D1

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work, embankment work etc.	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

CONTRACTOR

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries /Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C. Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot and of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.-1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in-charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

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32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall conform to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all and sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

- a. Complete details of earthing electrodes, earthing station and earthing conductors
- b. Details of conduit supports
- c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

CONTRACTOR

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SCHEDULE – B**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

1. a) Is the bidder currently involved litigation relating to the works. Yes /No in any
- b) If yes: give details:
2. Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. Yes /No
3. a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. Yes /No
- b) If yes, give details:

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

CONTRACTOR

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**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF M.RAMPUR FISH FARM IN
KALAHANDI DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 21,21,812.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

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CONTRACTOR

TENDER OPENING OFFICER

BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF M.RAMPUR FISH FARM IN KALAHANDI DISTRICT

SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE IN [RS]	AMOUNT IN [RS]
	Hatchery Renovation and Allied Structure				
1	Dismantling 2.50 cms thick A.S.Flooring height including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of all and complete finished in all respect etc. complete as directed by Engineer-In-Charge.	132.05	Sqm	□ 75.80	□ 10,009.39
2	Dismantling 2.50 cmsthick grading concrete from roof slab including cleaning the roof surface and lowering and removing the debris with 50.00m lead including cost of all and complete finished in all respect etc. complete as directed by Engineer-In-Charge.	220.62	Sqm	□ 85.30	□ 18,818.88
3	Dismantling and removing cement concrete including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of all and complete finished in all respect etc. complete as directed by Engineer-In-Charge.	1.68	Cum.	□ 563.80	□ 947.18
4	Dismantling and removing of old lime or cement plaster from walls including racking out joints 12 mm deep and removing debris within 50 mtr lead including cost of all and complete finished in all respect etc. complete as directed by Engineer-In-Charge.	695.22	Sqm	□ 37.90	□ 26,348.83
5	Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as	1.68	Cum.	□ 4,316.90	□ 7,252.39

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6	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-charge.	220.62	Sqm	□ 276.60	□ 61,023.49
7	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge	139.15	Sqm	□ 188.90	□ 26,285.43
8	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	146.02	Sqm	□ 132.20	□ 19,303.84
9	Providing 12 mm thick cement plaster in cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the	76.53	Sqm	□ 150.50	□ 11,517.76

10	Providing 6 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.	333.52	Sqm	□ 148.40	□ 49,494.36
11	Supplying, fabricating, erection of MS Structural Steel Member including cost, conveyance, royalty, taxes of all materials, labor, labour cess, T&P etc. required for the work etc complete as per the direction of the Engineer-in-charge.	17.22	Qtl.	□ 7,706.80	□ 1,32,711.09
12	Dismantling 2.50 cms thick A.S.Flooring height including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of all and complete finished in all respect etc. complete as directed by Engineer-In-	109.73	Sqm	□ 294.60	□ 32,326.45
13	Painting two coats over a coat of primer to New/Old Wood works of approved make and shade to make an even shade after preparing the surface smooth by means of sand papering & applying putty wherever necessary in all floors with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. complete as	68.44	Sqm	□ 188.20	□ 12,880.40
14	Finishing plastered surface of walls with wall primer and making smooth to receive painting including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. complete as directed by Engineer-In-Charge.	618.69	Sqm	□ 29.90	□ 18,498.83
15	Distempering to walls with distemper of approved shade on new work two coats to give an even shade including cost of all and complete including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer- in-Charge.	472.67	Sqm	□ 64.30	□ 30,392.68
16	Finishing walls with weather coat of approved shade on new work two coats over a coat wall primer to give an even shade including cost of all and complete including cost of paint with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge.	132.58	Sqm	□ 66.80	□ 8,856.34

	Water Supply Line 1008.00 Mtr. from Jagannath Sagar to M.Rampur Fish Farm				□ 0.00
17	Earth work in hard soil in excavation of foundation including levelling the bed shoring and shuttering the foundation trench if required including cost of all and complete finished in all respect including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer- in-Charge.	181.44	Cum.	□ 181.80	□ 32,985.79
18	Back filling behind abutment, wing wall & return wall complete as per drawing & specification including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-	60.48	Cum.	□ 31.60	□ 1,911.16
19	Laying in trenches H.D.P.E [P.E] pipes conforming to IS:4984-2016 and specials of the following outside diameter for all classes including jointing with supply of approved solvent cement by non-heat application method including testing as per specification complete. (Earth work in trenches to be measured and paid for separately) 110mm dia H.D.P.E [P.E] pipe SDR-21 [6.0 Kgf/cm²]	236.00	Mtr.	□ 615.00	□ 1,45,140.00
19.1	160mm dia rigid H.D.P.E [P.E] pipe SDR-21 [6.0 Kgf/cm²]	772.00	Mtr.	□ 1,233.00	□ 9,51,876.00
20	Fixing of Butterfly Valve Agri . (Horizontal plunger type) conforming to IS 1703-1977 as per specification complete 110mm dia Butterfly Valve Agri [SUPREME]	26.00	Nos.	□ 3,761.90	□ 97,809.40
21	Supplying, fitting, fixing & installing in position KOS +822 7.50 HP Open well Submersible pump including control panel, etc complete finished in all respect.	2.00	Nos.	□ 33,517.00	□ 67,034.00
	Water Supply & Sanitary Installation				□ 0.00
22	Supplying all materials,labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar(1:4) for taking G.I. pipes and fittings /P.V.C. pipes and fittings all complete as per specification. 250 MM thick wall	8.00	Nos.	□ 46.60	□ 372.80
23	Providing and fixing to wall or ceiling and floor rigid PVC pipes conforming to ASTM-D-1785/89[Sch-80] and pipe fittings of the following nominal bore with clamps including making good the wall , ceiling and floor all complete as per specification.	25.00	Mtr.	□ 96.00	□ 2,400.00
23.1	20 Mm Diameter	25.00	Mtr.	□ 115.80	□ 2,895.00
23.2	25 Mm Diameter	25.00	Mtr.	□ 146.60	□ 3,665.00
23.3	32 Mm Diameter	35.00	Mtr.	□ 154.40	□ 5,404.00
23.4	40 Mm Diameter	40.00	Mtr.	□ 92.60	□ 3,704.00
23.5	50 Mm Diameter	40.00	Mtr.	□ 310.20	□ 12,408.00

24	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes. 75 MM Diameter	20.00	Mtr.	□ 182.10	□ 3,642.00
24.1	110MM Diameter	40.00	Mtr.	□ 294.40	□ 11,776.00
25	Supplying all labour and T&P for fixing Brass /Gunmetal Ball volve [horizontal plungr type] confirming to IS:1703-1977 of the following nominal sizes as per specification all complete. 32 MM Brass Ball Valve	15.00	Nos.	□ 1,546.60	□ 23,199.00
26	Supplying all materials,labour and T&P for fixing CP Gratings of the following nominal diameter of outlet, of self cleaning design with sand cast iron screwed down or hinged grating with or without vent arm including cutting and making good to the walls and floors etc. all complete as per specification.	8.00	Nos.	□ 475.40	□ 3,803.20
27	Supplying fitting fixing of cromium plated PVC over head shower rose [3"] with arm including polishing and complete as per specification. Over Head Shower	16.00	Nos.	□ 460.60	□ 7,369.60
	Sinking of 200 MM X 150 MM Production well through DTH or Combination drilling Rigs				□ 0.00
28	Labour for drilling a perfectly vertical bore hole of a specified dia for a specified depth below ground level in alluvial soil strata by mud Rotary Rig drilling as required to suit the site condition as per the direction of Engineer-in-charge including use of own rigs with its accessories, tools and plant and consumables etc. for lowering of finished bore suitable for lowering of 200mm dia GI/PVC pipes for housing, fitted with socket and with or without well screen as per the necessity for the soft, medium, hard and boulder formation (GI/PVC casing pipes if required by the contractor to prevent collapse of over burden portion) including lower and withdrawing of casing pipe after drilling 200mm to 450mm ia in over burden portion.	60.00	Mtr	□ 789.00	□ 47,340.00
29	Supply of all labour & T&P for Lowering the following size G.I/PVC Pipes with or without slotted pipes as per the necessity from ground level and fitted up in perfectly vertical position, including cutting and threading pipe and slotted pipe and fixing all jointing materials etc. complete and keeping the top of the casing pipe threaded including plugging tube wells to prevent entry of foreign from above excluding cost of fittings &	45.00	Mtr	□ 182.60	□ 8,217.00

30	Cleaning and developing the tube well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply an use of all necessary equipment and labour as per the direction of Engineer-in-Charge.	1.00	Nos.	□ 6,690.10	□ 6,690.10
31	Supplying all materials, labour, tools and plant and withdrawing casing pipes from the unsuccessful bore and depositing in the departmental store in good condition.	45.00	Mtr.	□ 251.20	□ 11,304.00
32	Supplying all labour, T&P and materials for Packing the bore with washed gravel (size P-6) around the pipes in good quality excluding cost of grovel etc. Complete as per the direction of the direction of the Enginer-in-charge.	1.00	Nos.	□ 2,221.15	□ 2,221.15
33	Supplying all materials labour and T&P and grouting with cement slurry for Sanitary Sealing around the GI/PVC casting pipe upto 3mtr. Below ground level including cost of cement all complete as per the direction of Engineer-in-charge.	1.00	Nos.	□ 3,029.70	□ 3,029.70
34	Providing supplying fitting and fixing of 5 HP single Phase oilfitted 100mm dia borewell submergable pump set of KSB/ kirlosker/ crompton/texmo and other IS make with control pannel including 2.5sqmm three core PVC coated copper flat cable, 32mm dia HDPE pipe / nipple / bolt and PVC coated 6mm wire rope , U bolt , M.S clamp with all labour, T&P, taxes as applicable at site as per specification and direction of engineer in charge.	1.00	Nos.	□ 48,865.00	□ 48,865.00
35	Construction of LT 3 Ph 4way line with 3x35x1x25sqmm XLPE AB Cable	0.10	Km	□ 3,23,283.90	□ 32,328.39
36	Supply of PVC armored cables ISI marked.(Make-Glowstar/ Polycab/ Nicco/KEI/HPL/ Mescab	30.00	Mtr	□ 157.14	□ 4,714.20
37	Laying of Cable on wall surface with steel shaddle	30.00	Mtr	□ 55.35	□ 1,660.50
38	Supply and making and termination with brass compression gland and aluminium logs for PVC insulated and PVC sheathed aluminium cable of 1.1kv grade (without cost of cable)	2.00	Set	□ 152.67	□ 305.34
39	Supply, installation, testing and commissioning of OUTDOOR pannel board with one coat of powder coating wheather resistant enamel paint with danger board. 16/18 SWG pannel box L X BX 5"= sq. inch for single door made out of CR sheet of 16SWG and boarder angle frame to provide above pannel with proper space ,hinged door must be painted one coated red oxide and two coat enamel gray paint	14400.00	Sq. Inch	□ 1.34	□ 19,296.00

39.1	Supply and fixing of internal wiring to equipment installed in the panel board with required size of copper multistrand single core cables duly crimped with copper lugs and all connections L X B including cost of copper conductor and other fittings	14400.00	Sq. Inch	□ 0.77	□ 11,088.00
40	Supply and fixing of Ammeter with selector switch including all connections.	1.00	Nos.	□ 1,248.21	□ 1,248.21
41	Supply and fixing of voltmeter with selector switch including all connections	1.00	Nos.	□ 1,248.21	□ 1,248.21
42	Supply and fixing of Indicator lamp with toggler switch and fuse	3.00	Nos.	□ 216.07	□ 648.21
43	Supply and fixing of C.T coil upto 400Amp including all connections	3.00	Nos.	□ 767.85	□ 2,303.55
44	Supply and fixing of TPN switch disconnecter fuse (panel mounted type with ISI marked HRC fuse). Supply and fixing of 100Amp TPN switch disconnecter fuse/capacitor (panel mounted type	1.00	Nos.	□ 4,533.92	□ 4,533.92
45	Supply and fixing of 4pole MCCB in cubicle panel board 160 AMP 16 KA.	1.00	Nos.	□ 5,984.42	□ 5,984.42
46	Supply, installation, testing and commissioning INDOOR panel board with danger board Base channel 50 X 50 X 8mm with base concreting including connection and testing.	25.00	Mtr	□ 98.21	□ 2,455.25
47	Supplying all materials,labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar(1:4) for taking G.I. pipes and fittings /P.V.C. pipes and fittings all complete as per specification. 250 MM Thick wall	2.00	Nos.	□ 43.90	□ 87.80
48	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes. 110 MM Diameter	30.00	Mtr	□ 294.40	□ 8,832.00
49	Supplying all labour and T&P for fixing Brass /Gunmetal Ball volve [horizontal plungr type] confirming to IS:1703-1977 of the following nominal sizes as per specification all complete. 65 MM dia Brass / Gun Metal Full way Valve	2.00	Nos.	□ 5,341.20	□ 10,682.40

50	Recessed wiring to light point/Fan point/ Exhaust fan point/Call bell point with 1.5sq.mm FR PVC insulated single core multistrand copper conductor of ISI marked with 20mm dia non-metallic PVC flexible conduit with 5A ,25 on MS box having front bakelite cover of suitable size, MS box with 1.5sq.mm FR PVC insulated single core multistrand copper conductor as earth wire including all accessories and connection (Make of wire-Finolex/L&T/Anchor/Havells/V-Guard/ Great White/HPL)				
	Packing yard				
50.1	Group-A L.P- 2 F.P- C.B.P-	6.0	Point	□ 363.39	□ 2,180.34
50.2	Group-B L.P- 2 F.P- C.B.P-	2.0	Point	□ 513.39	□ 1,026.78
50.3	Group-C L.P- 5 F.P- C.B.P-	9.0	Point	□ 693.75	□ 6,243.75
50.4	Recessed extra lead submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire -Finolex/ L&T/ Anchor/Havells/V-Guard /Great White/HPL) exceeding to Group-C points in 2 X 1.5sqmm +1 x 1.5sqmm	38.0	Mtr.	□ 108.92	□ 4,138.96
51	Supply and fixing of metal box of 180mm X 100mm X 60mm deep (nominal size) on surface or in recess with suitable size of phenolic laminated sheet cover in front including providing and fixing of 6pin 5/6 & 15/16Amp socket outlet and 15/16Amp piano type switches connection painting etc. as required. (make-Anchor/Cona/Great white/HPL)	5.0	Each	□ 109.92	□ 549.60
52	Recessed submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire -Finolex/L&T/Anchor/Havells/V-Guard/Great White/Mescab/HPL)				
52.1	2 X 2.5sq.mm +1 X 1.5sqmm	67.2	Mtr.	□ 127.67	□ 8,583.25
52.2	2 X 4sq.mm +1 X 1.5sqmm.	40.0	Mtr.	□ 150.89	□ 6,035.60
53	S/F of Bakelite angle holder/batten holder of ISI marked conforming to IS-1258/1987 in place of ceiling rose .	17.0	Each	□ 8.03	□ 136.51
54	Supply and fixing of following way single pole and neutral sheet steel MCB distribution board 250V on surface/recess complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required (but with out MCB/ RCCB/ Isolator) make-HPL/ Havells/ Legrand /L&T/C&S.)				
	4way,Double door	2.0	Each	□ 890.17	□ 1,780.34
55	Supply and fixing of 5Amp to 32A rating 240V "B" series MCB suitable for lighting and other loads of the following poles in the exiting MCB DB ISI marked complete with connections testing and commissioning etc. (make-HPL/Havells/Legrand /L&T/C&S)				

	Single pole (SP)	2.0	Each	₹ 200.00	₹ 400.00
56	Supply Fixing of following rating double pole 240V isolator in the existing DB ISI marked complete with connection listing and Commissioning etc as required				
	40Amp	2.0	Each	₹ 283.30	₹ 566.60
57	Supply and fixing of porcelain base kit kat (Anchor/Havells)				
	63Amp kit kat	4.0	Each	₹ 258.92	₹ 1,035.68
58	Supply ,installation, testing and commissioning of main switches (IS 13940 part-3/1993) of following capacity on existing surface/wall mounting and completer with HRC fuse links, interconnections, earthing (Make-Seimens/HPL/Anchor/L&T/Havells/C&S/RK)				
	32Amp ICDP main switch with M.S board.	2.0	Each	₹ 1,038.39	₹ 2,076.78
59	Supply and fixing of different type of fitting with lamp				
59.1	1' X 28watt T-5 fitting(Make-Bajaj/ Philips	2.0	Each	₹ 751.78	₹ 1,503.56
59.2	Street light (1 X 24/36watt CFL)with G.I bracket(Make-Bajaj/Philips /Crompton/PAC/HPL	2.0	Each	₹ 2,043.75	₹ 4,087.50
59.3	Supply and fixing of 15/20Watt CFL lamp (Philips/Havells/AnchorBajaj)	13.0	Each	₹ 178.57	₹ 2,321.41
				Total.	₹ 21,21,812.30
	TOTAL - 59 (FIFTY NINE) ITEMS ONLY			Or Say.	₹ 21,21,812.00
(RUPEES TWENTY ONE LAKHS TWENTY ONE THOUSAND EIGHT HUNDRED TWELVE) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

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APPROVED

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack**

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BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF PHULBANI FISH FARM IN
KANDHAMAL DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 23,87,140.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

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**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KANDHAMAL** for the work “**DEVELOPMENT OF PHULBANI FISH FARM IN KANDHAMAL DISTRICT**” from “**C & B**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 23,87,140.00**

02. The tenderer should please note that the work will have to be completed within **04 [FOUR] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 23,900.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

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07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and super scribed for the work “**DEVELOPMENT OF PHULBANI FISH FARM IN KANDHAMAL DISTRICT**” In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, KANDHAMAL** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.....-.....) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-...../Qntl.
- (d) Tor steel will be supplied at the rate of Rs-...../Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs-..... (Rupees-.....) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{D2}{D1} \times R \times (12-D1)$$

100 D1

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work embankment work etc. e	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

CONTRACTOR

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

CONTRACTOR

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries / Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C. Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia RV.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot end of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.- 1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in-charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I./G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

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32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1.6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

- a. Complete details of earthing electrodes, earthing station and earthing conductors
- b. Details of conduit supports
- c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING
OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

1. a) Is the bidder currently involved litigation relating to the works. Yes /No in any
- b) If yes, give details:
2. Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. Yes /No
3. a) Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. Yes /No
- b) If yes, give details:

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

TENDER OPENING OFFICER

SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

CONTRACTOR

TENDER OPENING OFFICER

**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF PHULBANI FISH FARM IN
KANDHAMAL DISTRICT”**

ESTIMATED COST PUT TO TENDER : Rs. 23,87,140.00

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

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CONTRACTOR

TENDER OPENING OFFICER

BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF PHULBANI FISH FARM IN KANDHAMAL DISTRICT

SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Dewatering using 5.0 HP diesel pump including cost of all and complete finished in all respect with cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P scaffolding etc. complete as directed by Engineer-In-Charge. I. Renovation of Tanks- 58.80 Hours. Total. 58.80 Hours	58.80	Hour	₹ 51.30	₹ 3,016.44
2	Earthwork in slushy soil [in water up to 0.60 m depth requiring aid of pans and vessels] with initial lead and lift including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge. I. Renovation of Tanks- 2116.80 Cum. Total. 2116.80 Cum.	2116.80	Cum.	₹ 155.10	₹ 3,28,315.68
3	Extra lift of 1.50m or part there of over the initial lift of 1.50m in all kinds of embankments and road works and ordinary earth work in general including cost of all and complete as per direction of Engineer in Charge. I. Renovation of Tanks- 529.20 Cum. Total. 529.20 Cum.	529.20	Cum.	₹ 14.40	₹ 7,620.48
4	Excavation of any approved type of soil in approved borrow area by mechanical means loading into and transportation by mechanical means and unloading the soil within initial lead of 5 KM on properly prepared and scientifically approved surface including spreading and levelling the earth in 22.50 CM layers to make ready for watering and compaction with sheep foot rollers and dozers but excluding watering and compaction in dams and dykes for all heights including construction, maintenance, watering and light of haul road and borrow area, etc complete as per the direction of Engineer-in-Charge. [Measurement of the fill to be taken on the finished compacted section under OMC condition] I. Strengthening of Embankment- 986.67 Cum.	986.67	Cum.	₹ 200.30	₹ 1,97,630.00

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5	Watering earthwork upto OMC condition and compaction by sheepfoot rollers and dozers in layers not exceeding 22.5 CM to 95% dry density including hire & running charges of all the machineries complete as per the direction of Engineer-in-Charge. [Measurement to be taken on the finished compacted section of the fill under OMC condition] I. Strengthening of Embankment- 986.67 Cum.	986.67	Cum.	□ 26.90	□ 26,541.42
6	Earthwork in ordinary soil with initial lead and lift including rough dressing and breaking the clods to maximum 5cm to 7cm in size and laying the layers not exceeding 0.30m in depth as per specification and approved by the department as per the direction of the Engineer-in-charge. I. Watchman Shed- 21.45 Cum. Total. 21.45 Cum.	21.45	Cum	□ 135.30	□ 2,902.18
7	Earth work excavation in all kinds of soil including moorum, stony earth & earth mixed with boulders except sheet rock and boulders requiring blasting including dressing of sides and leveling the bed up to the required depth and depositing the excavated materials away from the work site with all leads and lifts, including shoring, shuttering & dewatering (if required) with cost of labour, labour cess, hire & running charges of all machineries, sundries & T&P required for the work complete as directed by the Engineer in charge. I. Existing Structure- 127.87 Cum.	127.87	Cum	□ 181.80	□ 23,246.76
8	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer-in-Charge. I. Watchman Shed- 18.61 Cum. II. Existing Structure- 66.00 Cum.	84.61	Cum	□ 336.50	□ 28,471.26

8	<p>Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge.</p> <p>I. Watchman Shed- 4.55 Cum. II. Existing Structure- 22.00 Cum.</p>	26.55	Cum	□ 4,487.80	□ 1,19,151.09
9	<p>P.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.</p> <p>I. Watchman Shed- 1.61 Cum. Existing Structure- 44.00 Cum. Total. 45.61 Cum.</p>	45.61	Cum.	□ 4,706.90	□ 2,14,681.70
10	<p>Providing Expansion Joint in .C.C. road with approved design etc. complete including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.</p> <p>I. Existing Structure- 76.00 Rmt. Total. 76.00 Rmt.</p>	76.00	Rmt.	□ 265.20	□ 20,155.20
11	<p>Dismantling and removing cement concrete including stacking the useful materials for re-use and removing the debris with 50.00m lead including cost of all and complete finished in all respect complete as per the direction of the Engineer-in-charge.</p> <p>I. Existing Structure- 2.37 Cum.</p>	2.37	Cum.	□ 563.80	□ 1,336.20

12	Dismentalling and removing of old lime or cement plaster from walls including racking out joints 12 mm deep and removing debris within 50 mtr lead etc. complete as per the direction of the Engineer-in-charge. I. Existing Structure - 296.61 Sqm. Total. 296.61 Sqm.	296.61	Sqm.	□ 37.90	□ 11,241.51
13	R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.				
13.1	Base of Column I. Watchman Shed- 5.18 Cum. Total. 5.18 Cum.	5.18	Cum.	□ 4,857.10	□ 25,159.77
13.2	RCC Column I. Watchman Shed- 2.51 Cum. Total. 2.51 Cum.	2.51	Cum.	□ 11,856.20	□ 29,759.06
13.3	RCC Plinth Beam I. Watchman Shed- 2.71 Cum. Total. 2.71 Cum.	2.71	Cum.	□ 5,207.40	□ 14,112.05
13.4	RCC Beam I. Watchman Shed- 2.17 Cum. Total. 2.17 Cum.	2.17	Cum.	□ 10,426.40	□ 22,625.28
13.5	RCC Lintel I. Watchman Shed- 2.24 Cum. Total. 2.24 Cum.	2.24	Cum.	□ 8,334.20	□ 18,668.60
13.6	RCC Chajja I. Watchman Shed- 2.55 Sqm. Total. 2.55 Sqm.	2.55	Sqm.	□ 756.20	□ 1,928.31
13.7	RCC Roof Slab I. Watchman Shed- 4.84 Cum. Total. 4.84 Cum.	4.84	Cum.	□ 8,907.20	□ 43,110.84
14	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Foundation & Plinth). I. Watchman Shed- 3.90 Cum. Total. 3.90 Cum.	3.90	Cum.	□ 3,991.20	□ 15,565.68

15	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance ± 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Super Structure). I. Watchman Shed- 24.26 Cum. Total. 24.26 Cum.	24.26	Cum.	□ 4,024.50	□ 97,634.37
16	Providing 2.5cm thick grading concrete (1:2:2) using 6mm. size hard black granite crusher broken chips and screened, washed sharp sand of approved quality and from approved quarry including mixing, hoisting lowering and laying concrete with watering curing in all floors with cost, conveyance, royalties, taxes of all materials, cost of labour, labour cess, T&P etc. required for the work complete as directed by the Engineer-in-Charge. I. Watchman Shed- 48.44 Sqm. Total. 48.44 Sqm.	48.44	Sqm	□ 282.80	□ 13,698.83
17	Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or Tor steel conforming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge conforming to I.S. 280 (galvanized minimum 1 mm) and cost of all labour, labour cess, all T&P required for the work etc. complete as directed by the Engineer- in-Charge. I. Watchman Shed- 19.81 Qtl.	19.81	Qtl.	□ 5,729.50	□ 1,13,501.39
18	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge. I. Watchman Shed- 81.96 Sqm. Total. 81.96 Sqm.	81.96	Sqm	□ 188.90	□ 15,482.24

19	<p>Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.</p> <p>I. Watchman Shed- 81.96 Sqm. Total. 81.96 Sqm.</p>	81.96	Sqm	□ 132.20	□ 10,835.11
20	<p>Providing 6 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge.</p> <p>I. Watchman Shed- 50.43 Sqm. Total. 50.43 Sqm.</p>	50.43	Sqm	□ 148.40	□ 7,483.81
21	<p>Supplying, fabricating, erection of MS Structural Steel Member including cost, conveyance, royalty, taxes of all materials, labor, labour cess, T&P etc. required for the work etc complete as per the direction of the Engineer-in-charge.</p> <p>I. Watchman Shed- 2.40 Qtl. Total. 2.40 Qtl.</p>	2.40	Qtl.	□ 7,706.80	□ 18,496.32
22	<p>Fixing ceramic tiles in floors treads or steps and landing on 25 mm thick bed of CM (1:1) [1 cement : 1 sand] jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and complete finished in all respect including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge.</p> <p>I. Watchman Shed- 2.70 Sqm. Total. 2.70 Sqm.</p>	2.70	Sqm	□ 756.20	□ 2,041.74

23	Fixing ceramic tiles in dado skirting and risers of steps on 12 mm thick C.P (1:3) including cost of all and complete finished jointed with neat cement slurry mixed with pigment to match the shade of tile including rubbing and polishing complete including cost of all and complete finished in all respect including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge. I. Watchman Shed- 11.93 Sqm. Total. 11.93 Sqm.	11.93	Sqm	₹ 732.20	₹ 8,735.14
24	Painting two coats over a coat of primer over new steel work including cost of all and complete with cost of all materials taxes, labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge. I. Watchman Shed- 13.05 Sqm. Total. 13.05 Sqm.	13.05	Sqm	₹ 188.20	₹ 2,456.01
25	Finishing walls with water proofing cement paint of approved shade on new work two coats to give an even shade including cost of all and complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge. I. Watchman Shed- 214.35 Sqm. Total. 214.35 Sqm.	214.35	Sqm	₹ 33.40	₹ 7,159.29
26	Providing, supplying, fitting & fixing in position of PVC flush door in proper position with the help of hinges, screws, nuts etc including all accessories etc complete the work finished in all respect including cost, conveyance, taxes of all materials, cost of all labour, labour cess, T&P etc. required for the work complete as directed by the Engineer- in-Charge. I. Watchman Shed- 1.57 Sqm. Total. 1.57 Sqm.	1.57	Sqm.	₹ 2,472.86	₹ 3,882.39

27	Labour for drilling a perfectly vertical bore hole of a specified dia for a specified depth below ground level in alluvial soil strata by mud Rotary Rig drilling as required to suit the site condition as per the direction of Engineer-in-charge including use of own rigs with its accessories, tools and plant and consumables etc. for lowering of finished bore suitable for lowering of 200mm dia GI/PVC pipes for housing, fitted with socket and with or without well screen as per the necessity for the soft, medium, hard and boulder formation (GI/PVC casing pipes if required by the contractor to prevent collapse of over burden portion) including lower and withdrawing of casing pipe after drilling 200mm to 450mm ia in over burden portion.	200.00	Mtr	□ 789.00	□ 1,57,800.00
28	Supply of all labour & T&P for Lowering the following size G.I/PVC Pipes with or without slotted pipes as per the necessity from ground level and fitted up in perfectly vertical position, including cutting and threading pipe and slotted pipe and fixing all jointing materials etc. complete and keeping the top of the casing pipe threaded including plugging tube wells to prevent entry of foreign from above excluding cost of fittings & jointing materials.	90.00	Mtr	□ 182.60	□ 16,434.00
29	Cleaning and developing the tube well using their own compressor continuously worked till clear and adequate discharge is obtained from the tube well including supply an use of all necessary equipment and labour as per the direction of Engineer-in-Charge.	2.00	Nos.	□ 6,690.10	□ 13,380.20
30	Supplying all materials, labour, tools and plant and withdrawing casing pipes from the unsuccessful bore and depositing in the departmental store in good condition.	90.00	Mtr	□ 251.20	□ 22,608.00
31	Supplying all labour, T&P and materials for Packing the bore with washed gravel (size P-6) around the pipes in good quality excluding cost of gravel etc. complete as per the direction of the Engineer-in-charge.	2.00	Nos.	□ 2,221.15	□ 4,442.30
32	Supplying all materials labour and T&P and grouting with cement slurry for Sanitary Sealing around the GI/PVC casing pipe up to 3 mtrs. Below ground level including cost of cement all complete as per the direction of Engineer-in-charge.	2.00	Nos.	□ 3,029.70	□ 6,059.40

33	Providing supplying fitting and fixing of 5 HP 3 Phase oilfitted 100mm dia borewell submergible pump set of KSB/ kirlosker/ crompton/texmo and other IS make with control pannel including 2.5sqmm three core PVC coated copper flat cable, 32mm dia HDPE pipe / nipple / bolt and PVC coated 6mm wire rope , U bolt , M.S clamp with all labour, T&P, taxes as applicable at site as per specification and direction of engineer in charge.	2.00	Nos.	□ 48,865.00	□ 97,730.00
34	Construction of LT 3 Ph 4way line with 3x35x1x25sqmm XLPE AB Cable. I. Sinking of Production Well- 0.20 Km. II. Extension of L.T. Over Head Line-0.35 Km. Total. 0.55 Km.	0.55	Km	□ 3,23,283.90	□ 1,77,806.14
35	Supply of PVC armored cables ISI marked.(Make- Glowstar/ Polycab/ Nicco/KEI/HPL/ Mescab 16 Sqmm 4 Core I. Sinking of Production Well- 60.00 Mtr. II. Extension of L.T. Over Head Line-20.00 Mtr Total. 80.00 Mtr.	80.00	Mtr	□ 157.14	□ 12,571.20
36	Laying of Cable on wall surface with steel shaddle. I. Sinking of Production Well- 60.00 Mtr. II. Extension of L.T. Over Head Line-20.00 Mtr Total. 80.00 Mtr.	80.00	Mtr	□ 55.35	□ 4,428.00
37	Supply and making and termination with brass compression gland and aluminium logs for PVC insulated and PVC sheathed aluminium cable of 1.1kv grade (without cost of cable) I. Sinking of Production Well- 4.00 Set. II. Extension of L.T. Over Head Line-2.00 Set. Total. 6.00 Set.	6.00	Set	□ 152.67	□ 916.02
38	Supply, installation, testing and commissioning of OUTDOOR pannel board with one coat of powder coating wheather resistant enamel paint with danger board. 16/18 SWG pannel box L X BX 5"= sq. inch for single door made out of CR sheet of 16SWG and boarder angle frame to provide above pannel with proper space ,hinged door must be painted one coated red oxide and two coat enamel gray paint. I. Sinking of Production Well- 5,760.00 Sq.Inch II. Extension of L.T.Over Head Line21,000.00	26760.00	Sq. Inch	□ 1.34	□ 35,858.40

38.1	Supply and fixing of internal wiring to equipment installed in the pannel board with required size of copper multistrand single core cables duly crimped with copper lugs and all connections L X B including cost of copper conductor and other fittings. I. Sinking of Production Well- 5,760.00 Sq.Inch II. Extension of L.T.Over Head Line-21,000.00 Sq.inch Total. 26760.00 Sq. Inch	26760.00	Sq. Inch	□ 0.77	□ 20,605.20
39	Supply and fixing of Ammeter with selector switch including all connections. I. Sinking of Production Well- 2.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 17.00 Nos.	17.00	Nos.	□ 1,248.21	□ 21,219.57
40	Supply and fixing of voltmeter with selector switch including all connections I. Sinking of Production Well- 2.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 17.00 Nos.	17.00	Nos.	□ 1,248.21	□ 21,219.57
41	Supply and fixing of Indicator lamp with toggler switch and fuse. I. Sinking of Production Well- 6.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 21.00 Nos.	21.00	Nos.	□ 216.07	□ 4,537.47
42	Supply and fixing of C.T coil upto 400Amp including all connections I. Sinking of Production Well- 6.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 21.00 Nos.	21.00	Nos.	□ 767.85	□ 16,124.85
43	Supply and fixing of TPN switch disconnecter fuse (pannel mounted type with ISI marked HRC fuse). Supply and fixing of 100Amp TPN switch disconnecter fuse/capacitor (pannel mounted type with ISI marked HRC fuse). I. Sinking of Production Well- 2.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 17.00 Nos.	17.00	Nos.	□ 4,533.92	□ 77,076.64
44	Supply and fixing of 4pole MCCB in cubicle pannel board 160 AMP 16 KA. I. Sinking of Production Well- 2.00 Nos. II. Extension of L.T.Over Head Line- 15.00 Nos. Total. 17.00 Nos.	17.00	Nos.	□ 5,984.42	□ 1,01,735.14

45	Supply, installation, testing and commissioning INDOOR pannel board with danger board Base channel 50 X 50 X 8mm with base concreting including connection and testing. I. Sinking of Production Well- 50.00 Mtr. II. Extension of L.T.Over Head Line- 110.00 Mtr. Total. 160.00 Mtr.	160.00	Mtr	□ 98.21	□ 15,713.60
46	Supplying all materials,labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar(1:4) for taking G.I. pipes and fittings /P.V.C. pipes and fittings all complete as per specification.				
	250 MM thick wall	3.00	Each	□ 43.60	□ 130.80
47	Providing and fixing to wall or ceiling and floor rigid PVC pipes conforming to ASTM-D-1785/89[Sch-80] and pipe fittings of the following nominal bore with clamps including making good the wall , ceiling and floor all complete as per				
47.1	15mm. Diameter.	7.00	Meter	□ 96.00	□ 672.00
47.2	20mm. Diameter.	15.00	Meter	□ 115.80	□ 1,737.00
47.3	25mm. Diameter.	20.00	Meter	□ 146.60	□ 2,932.00
48	Supplying all materials,labour and T&P for cutting groves in pucca floor and walls for taking G.I. pipes and fittings /P.V.C. pipes and fittings and making good to the amages all complete as per specification.				
		7.00	Meter	□ 173.80	□ 1,216.60
49	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes.				
	110 mm diameter	12.00	Meter	□ 294.40	□ 3,532.80
50	Providing and fixing of Rational moulded polyethylene cylendrical vertical water storage tanks confirming to IS:12701-1996 including cutting holes through the tank and fixing mild steel tubes and fittings and proviidng extra sockets and jam nuts , fixing ball volve etc. including hoisting up to a hite of 5.00metes above ground level and placing the tank to the required position etc. all complete as per specification and direction of the engineer-in-				
	1000 Litre Water Tank	1.00	Each	□ 12,398.40	□ 12,398.40
51	Supplying all labour and T&P for fixing Brass /Gunmetal Ball volve [horizontal plungr type] confirming to IS:1703-1977 of the following nominal sizes as per specification all complete.				
	32mm dia brass brass ball valve	2.00	Each	□ 1,546.60	□ 3,093.20

52	Supplying all materials,labour and T&P for Supplying all materials,labour and T&P for fixing wash down water closet (European type W.C.) with integral "S" or "P" trap to the floor with wooden plug and chromium plated screw including jointing the trap with soil pipe in cement mortar (1:1) etc. all complete as per specification.				
	E.W.C with "P" Trap	1.00	Each	₹ 2,332.30	₹ 2,332.30
53	Supplying all materials,labour and T&P for fixing plastic seat and cover for wash down water closet with chromium plated brass hinges and rubber buffers all complete as per specification.				
	Plastic Seat Cover	1.00	Each	₹ 611.60	₹ 611.60
54	Supplying all materials,labour and T&P for fixing of PVC10.00 ltr capacity low level flushing cistern with manually controlled device[handle cover] confirming to IS 7231 with fittings and fixtures etc. all complete as per specification.				
	10 ltrs capacity low level cistern	1.00	Each	₹ 1,484.70	₹ 1,484.70
55	Supplying all materials,labour and T&P for fixing wash hand basin with hole for pillar taps confirming to IS 2556:part4-2004 with cast iron /M.S. brackets painted white including cutting holes in walls and making good to the damages etc. all complete as per specification.				
	Wash hand basin 550x400mm	2.00	Each	₹ 2,489.30	₹ 4,978.60
56	Supplying all labour and T&P for fixing CP Angular stop cocks polished bright confirming to IS:781-1995 of the following nominal sizes as per specification all complete .				
	15mm dia CP angular stop cock	3.00	Each	₹ 712.40	₹ 2,137.20
57	Supplying all labour and T&P for fixing CP Concealed stop cocks polished bright confirming to IS:781-1995 of the following nominal sizes as per specification all complete .				
	15mm dia CP concealed stop cock	1.00	Each	₹ 855.30	₹ 855.30
58	Supplying all labour and T&P for fixing long body bib cock of the following size as per specification all complete (including cost of cock)				
	15mm dia long body Bib cock	1.00	Each	₹ 754.40	₹ 754.40
59	Supplying all labour and T&P for fixing long body bib cock of the following size as per specification all complete (including cost of cock)				
	15mm dia short body Bib cock	2.00	Each	₹ 697.60	₹ 1,395.20
60	Supplying fitting fixing of chromium plated CP over head shower rose with arm including polishing and complete as per specification.				
	CP Over Head Shower	1.00	Each	₹ 561.10	₹ 561.10

61	Supplying all materials,labour and T&P for fixing of [A] liquid soap container - glass container or plastic container with chromium plated brass lid and brackets fixed to wooden plugs with chromium plated brass screws [B] chromium plated brass soap dish complete with chromium plated brass brackets fixed to wooden plugs with chromium plated brass screws [C] white glazed tooth brush holder fixed to wooden plugs with chromiumplated brass screws as				
	Soap Holder	1.00	Each	□ 268.90	□ 268.90
62	Supplying all labour and T&P for fixing 2 in 1 bib cock of the following size as per specification all complete (including cost of cock)				
	2 in 1 bib cock	1.00	Each	□ 998.50	□ 998.50
63	Supplying fitting fixing of C.P health faucet highpressure lettered Hot and cold with long screws shanks and back nuts of the following nominal bore as per specification.				
	15mm dia CP health faucet with 1.0M PVC tube	1.00	Each	□ 542.90	□ 542.90
64	Supplying fitting fixing of C.P Pillar Taps highpressure lettered Hot and cold with long screws shanks and back nuts of the following nominal bore as per specification.				
	15mm dia CP Pillar cock	2.00	Each	□ 694.30	□ 1,388.60
65	Supplying all materials,labour and T&P for fixing CP Gratings of the following nominal diameter of outlet, of self cleaning design with sand cast iron screwed down or hinged grating with or without vent arm including cutting and making good to the walls and floors etc. all complete as per				
	C.P Gratings	1.00	Each	□ 475.40	□ 475.40
66	Supplying all materials,labour and T&P for fixing of 600x450 bevelled edge mirror of superior glass mounted on 6mm thick ac sheet or ply wood sheet and fixed to wooden plugs with chromium plated brass screws and washers etc. All complete as per specification .				
	I.Bevelled edge mirror (600x450mm.) :-	2.00	Each	□ 699.90	□ 1,399.80
67	Supplying all materials,labour and T&P for fixing standard size C. P. towel rail fixed with chromium plated brass brackets fixed to wooden plugs with chromium plated brass screws complete as per specification.				
	towel rail 600 x 200mm	1.00	Each	□ 820.20	□ 820.20
68	Supplying all materials,labour and T&P for fixing standard size C. P. towel ring fixed fixed to wooden plugs with chromium plated brass screws complete as per specification.				
	Chromium plated towel ring	1.00	Each	□ 427.20	□ 427.20

69	Supplying all materials,labour and T&P for fixing standard size glass self with chromium plated brass brackets and guard rails fixed to wooden plugs with chromium plated brass screws and washers etc. all complete as per specification.				
	Glass Shelf	2.00	Each	□ 592.70	□ 1,185.40
70	Supplyingfitting fixing of PVC waste pipe of following nominal diameter of wash basin or sink including brass check nut complete as per specification.				
	32mm dia Waste Pipe	2.00	Each	□ 84.30	□ 168.60
71	Supplying fitting fixing of 15mm dia PVC inlet connection pipe and making connection with pillar cock and supply mains for wash basin complete as per specification.				
	15mm dia 15mm x 300mm	2.00	Each	□ 72.30	□ 144.60
72	Supplying fitting fixing of CP waste of the following noninal diameter for wash hand basin and sink as per specification.				
	32mm CP waste	2.00	Each	□ 210.90	□ 421.80
73	Supplying all materials,labour and T&P for fixing of 100mm size'P' or 'S' trap [with horn or without horn]for water closet sqatting pan including jointing the trap with pan in cement mortar 1:1 etc. all complete as per specification and direction of the Engineer-in-charge.				
	110mm dia P -Trap	2.00	Each	□ 321.90	□ 643.80
74	Providing and fixing on wall face unplastised rigid PVC moulded fittings / accessories for unplastidsied rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal				
74.1	Single tee with door 110 mm diameter	3.00	Each	□ 268.30	□ 804.90
74.2	Plain Bend 87.5° 110mm diameter	5.00	Each	□ 139.10	□ 695.50
74.3	PVC Pipe Clip 110mm diameter	12.00	Each	□ 68.90	□ 826.80
74.4	PVC Vent Cowl 110mm diameter	1.00	Each	□ 77.30	□ 77.30
75	Constructing RCC soak way pit with R.C.C top slab in (1:2:4) mix, inside plaster 12mm thick with cement mortar (1:3) finished with neat cement punning, 12mm thick outside cement plaster (1:3), brick work with K.B bricks having crushing strength not less than 75kg/cm ² with dimensional tolerance ± 8 percent in cement mortar (1:4), cement concrete (1:2:4) finished smooth using 12mm size h.g chips, complete as per specification.				
		1.00	Each	□ 17,269.70	□ 17,269.70

76	Recessed wiring to light point/Fan point/ Exhaust fan point/Call bell point with 1.5sq.mm FR PVC insulated single core multistrand copper conductor of ISI marked with 20mm dia non-metallic PVC flexible conduit with 5A ,25 on MS box having front bakelite cover of suitable size, MS box with 1.5sq.mm FR PVC insulated single core multistrand copper conductor as earth wire including all accessories and connection (Make of wire-Finolex/L&T/Anchor/Havells/V-Guard/ Great White/HPL)				
76.1	Group-A -L.P- 2 F.P- C.B.P-	2.00	Point	□ 363.39	□ 726.78
76.2	Group-B L.P- 3 F.P- 1 C.B.P-	4.00	Point	□ 513.39	□ 2,053.56
76.3	Group-C L.P- 2 F.P- 1 C.B.P-	3.00	Point	□ 693.75	□ 2,081.25
76.4	Recessed extra lead submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire -Finolex/L&T/Anchor/Havells/V-Guard /Great White/HPL) exceeding to Group-C points in 2 X 1.5sqmm +1 x 1.5sqmm	18.00	Mtr	□ 97.32	□ 1,751.76
77	Recessed submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire - Finolex/L&T/Anchor/Havells/V-Guard/ Great White/Mescab/HPL)				
77.1	2 X 2.5sq.mm +1 X 1.5sqmm	36.00	Mtr	□ 112.50	□ 4,050.00
77.2	2 X 4sq.mm +1 X 1.5sqmm.	45.00	Mtr	□ 132.14	□ 5,946.30
78	S/F of Bakelite angle holder/batten holder of ISI marked conforming to IS-1258/1987 in place of ceiling rose .	7.00	Each	□ 8.03	□ 56.21
79	Supply and fixing Earthing with G.I earth pipe 3mtr. Long 40mm dia ISI marked including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal and salt as required				
	Standard earthing as per Govt. spcn.	1.00	Each	□ 2,106.25	□ 2,106.25

80	Supply and fixing of following way single pole and neutral sheet steel MCB distribution board 250V on surface/recess complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required (but with out MCB/ RCCB/ Isolator) make-HPL/ Havells/ Legrand /L&T/C&S.)				
	4way,Double door	1.00	Each	₹ 890.17	₹ 890.17
81	Supply and fixing of 5Amp to 32A rating 240V "B" series MCB suitable for lighting and other loads of the following poles in the exiting MCB DB ISI marked complete with connections testing and commissioning etc. (make-HPL/Havells/Legrand /L&T/C&S)				
	Single pole (SP)	1.00	Each	₹ 200.00	₹ 200.00
82	Supply Fixing of following rating double pole 240V isolator in the existing DB ISI marked complete with connection listing and Commissioning etc as				
	40Amp	1.00	Each	₹ 283.30	₹ 283.30
83	Supply and fixing of porcelain base kit kat (Anchor/Havells)				
	63Amp kit kat	2.00	Each	₹ 258.92	₹ 517.84
84	Supply ,installation, testing and commissioning of main switches (IS 13940 part-3/1993) of following capacity on existing surface/wall mounting and completer with HRC fuse links, interconnections, earthing (Make-Seimens/HPL/ Anchor/L&T/Havells/C&S/RK)				
	32Amp ICDP main switch with M.S board.	1.00	Each	₹ 1,038.39	₹ 1,038.39
85	Supply and fixing of different type of fitting with lamp				
85.1	Street light (1 X 24/36watt CFL)with G.I bracket(Make-Bajaj/Philips /Crompton/PAC/HPL	1.00	Each	₹ 2,043.75	₹ 2,043.75
85.2	Supply and fixing of 15/20Watt CFL lamp (Philips/Havells/ AnchorBajaj)	7.00	Each	₹ 178.57	₹ 1,249.99
86	S/F of 48" Ceiling fan Alluminium Body, Copper winding, High speed ceiling fan (Make-Crompton model-Jura, PolyCab (Model Vital, Polar Model Winpro) etc.	2.00	Each	₹ 2,411.60	₹ 4,823.20
87	Supply and fixing of fan regulator (Cona/ Anchor/Usha/Bajaj)				
	Electronics step type	2.00	Each	₹ 217.85	₹ 435.70

88	S/F of No.8 G.I wire as earth continuity	60.46	Kg	<input type="checkbox"/> 42.85	<input type="checkbox"/> 2,590.71
				Total.	<input type="checkbox"/> 23,87,140.11
	TOTAL - 88 (EIGHTY EIGHT) ITEMS ONLY			Or Say.	<input type="checkbox"/> 23,87,140.00
(RUPEES TWENTY THREE LAKHS EIGHTY SEVEN THOUSAND ONE HUNDRED FORTY) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

CONTRACTOR

APPROVED

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack**

CONTRACTOR

TENDER OPENING OFFICER

BID IDENTIFICATION NO:- 53 // Dt. 20.01.2021 //



GOVERNMENT OF ODISHA

FISHERIES & A.R.D. DEPARTMENT

DETAIL TENDER CALL NOTICE

FOR THE WORK

**“DEVELOPMENT OF SONEPUR FISH FARM IN
SUBARNAPUR DISTRICT”**

ESTIMATED COST PUT TO TENDER: Rs. 17,68,440.00

**EXECUTIVE ENGINEER (CIVIL) DIRECTORATE OF FISHERIES,
ODISHA, CUTTACK**

CONTRACTOR

TENDER OPENING OFFICER

CONTRACTOR

TENDER OPENING OFFICER

**OFFICE OF THE EXECUTIVE ENGINEER (CIVIL)
DIRECTORATE OF FISHERIES, ODISHA, CUTTACK.**

DETAIL TENDER CALL NOTICE

Sealed tenders(Percentage rate bids) in prescribed form to be eventually drawn up in P.W.D. form No. P-1 will be sold & received up to **2.00 P.M** on **Dt. 11.02.2021** by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, SUBARNAPUR** for the work “**DEVELOPMENT OF SONEPUR FISH FARM IN SUBARNAPUR DISTRICT**” from “**C & D**” class contractors and will be opened by the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the tenderer or their authorized agents who wishes to attend at **11:00 A.M. on Dt. 15.02.2021**. The amount of the estimate is approximately **Rs. 17,68,440.00**

02. The tenderer should please note that the work will have to be completed within **04 [FOUR] calendar months**, commencing from the date of issue of work order. Before acceptance of tender the successful bidder will be required to submit a work programme and milestone basing on the financial achievement so as to complete the work within the stipulated time and incase of failure on the part of the agency to achieve the milestone liquidated damage will be imposed. Without these Programme of works, the tender will not be accepted. Authority for acceptance of tenders would rest over the Executive Engineer (Civil) Directorate of Fisheries, Odisha Cuttack.
03. The tender call notice can be seen from official web site of Government of Odisha(<http://www.orissa.gov.in>) The bidding documents can also be downloaded from internet site. The bidder who down load the bidding document from the internet site will have to pay the cost of bid document i.e. **[Rs. 10,000/-]** in shape of demand draft from any nationalized bank payable at **Cuttack** in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and submit the demand draft in separate envelop marked ‘**cost of the bidding document downloaded from internet**’ with bid documents. The authority will not responsible , if any portion of the approved documents available in the office of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** is excluded or modified. The download facility will be available up to last date of sale of tender papers. The cost of bid documents is not refundable.
04. Tenderer are required to pay earnest money **Rs. 17,700.00** Either in shape of NSC / KVP / FIXED DIPOSIT / TDR from any nationalized bank payable at **CUTTACK** or / Postal Savings pass book / Postal Office Time Deposit Account only, duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** otherwise tender will not be considered.
05. Bidding documents requested by mail will be dispatched by registered/speed post on payment of an extra amount of Rs.500.00 (Rupees five hundred) only over the cost of documents. The Department will not be held responsible for the postal delay if any, in the delivery of the documents or non-receipt of the same.
06. If the tender documents sent through registered / speed post, do not reach in the concerned office by the above date and time, the offer will not be considered on any account even if the tender documents were dispatched by the tenderer before the due date.

07. The tender is to be submitted with EMD, signed DTCN, attested copy of registration certificate, PAN card, valid GSTIN, original Money Receipt, certificates duly filled-in and documents required as per the relevant clauses of this DTCN and special conditions if any. The cover is to be sealed and super scribed for the work “**DEVELOPMENT OF SONEPUR FISH FARM IN SUBARNAPUR DISTRICT**” In order to ensure that the envelopes are properly sealed, the contractor can seal them with superglue and also add tamperproof tapes as additional precaution. Bidders desirous to hire machineries or equipments from outside the state are required to furnish 2% of the amount put to tender as Bid Security. The bidder claiming for exemption of EMD amount must submit application separately for such purpose along with the documentary proof in Original on the date & time of opening of tender otherwise his tender is liable for rejection.
08. The tenderer are not required to write their name on the outer cover containing the bid documents. They are only required to write the name of the work and authority who had issued the tenders. The tender submitted in the wrong box shall not be taken in to consideration.
09. Additional Performance Security shall be furnished by the successful bidder when the bid is less than estimated cost put to tender. In such an event the bidders who have quoted less bid price / rates than the estimated cost put to tender shall have to furnish the exact amount of differential cost i.e. estimated cost put to tender minus the quoted amount as Additional Performance Security, in shape of Term Deposit Receipt of any scheduled Bank / Kissan Vikash Patra / Post Office Savings Bank Account / National Savings Certificate / Postal Office Time Deposit Account only, duly pledged in favour of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in a sealed envelope along with the price bid at the time of submission of bids. The successful bidder have to furnished the exact amount of differential cost as additional performance security within **7 [Seven] days** of intimation, failing which, his bid will not be taken in to consideration .The Earnest Money Deposit of the unsuccessful tenderer who are not awarded with the work will be refunded on application after the tender is finalized.
10. Besides the earnest money deposit and initial security deposit, contractors of all class except C&D class will be required to furnish security deposit by way of deduction from their bills at the rate of 5% of the gross amount of each bill whereas in case of C&D class contractor , such deduction will be made at the rate of 3% of the gross amount of each bill . Thus the total securities deposit from the contractor will be 7% for super , special , A & B and 5% for ‘C’ and ‘D’ class contractor as case may be.
11. In case of Govt. parties, co-operative Societies Diploma or Degree holders in Engineering who are registered with the Department , the rules framed by the government from time to time about EMD deposit , initial security deposit will apply.
12. The Bids will be opened on **Dt. 15.02.2021 at 11:00 A.M** by **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**, in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** in the presence of the bidders or their authorized representatives who wish to attend. If the office happens to be closed on the last date of receipt or opening of the bids as specified, then the bids will be received / opened on the next working day at the same time and venue unless otherwise notified.

13. The plan and specifications for the work can be seen in the Office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** during working hours and days, Complaints at a future date that the plan and specifications have not been seen cannot be entertained. The Contractor may obtain a set of tender documents for the work from the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack / District Fisheries Officer, SUBARNAPUR** on payment of **Rs. 6,000.00 [Rupees Six Thousand] Only**, which is non-refundable. The name of the work should be super scribed on the top of the cover.
14. All other information's can be obtained on application to the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
15. The Executive Engineer (C), Directorate of Fisheries Odisha reserves the right to reject any or all the tenders without assigning any reasons thereof.
16. The tenderer whose tender is selected for acceptance shall within a period of seven days upon written intimation being given to him of acceptance of his tender make an initial security deposit of 1% (One percent) of the tendered amount, so that the earnest money and initial security deposit will be 2% of the tendered amount and sign the agreement in the P.W.D. form No. P-1 for the due fulfillment of the contract in the office of the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack**.
17. This security deposit, together with the earnest money and the ISD amount withheld according to the provision of P-1 agreement shall be retained as security deposit for the due fulfillment of this contract. Failure to enter into the required agreement and to make the security deposits above shall entail forfeiture of the earnest money. No tender shall be finally accepted until the required amount of security money deposited. The written agreement to be entered into between the Contractor and the Govt. shall be the foundation right of the parties and the contract shall be deemed to be incomplete until the agreement has first been signed by the contractor and then by the proper officers authorized to enter into the contract and then by the proper officers authorized to enter into the contract on behalf of the Govt. The Dept. will accept the security deposits in the form of NSC / KVP / FIXED DIPOSIT / TDR (from any nationalized bank payable at (**Cuttack**) or /Postal Savings pass book duly pledged in favour of **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** and in no other form.
18. The rates (in percentage of excess / less / at per the estimate value) should be quoted in words and figures otherwise the tender will be liable for rejection.
In case of discrepancy in rates between words and figures, the rate in words shall prevail and in case of discrepancy between units. rate & totals the unit rate shall prevail. The tender shall be written legibly and free from erasures, over writings or in cases where corrections are unavoidable the same should be made by scoring out. initialing dating and rewriting.
19. The contractors will be responsible for payment of all royalties or other charges for quarrying materials. All local taxes inclusive of State Sales Tax & Income tax, Ferry. Tollage Charges, Octroi taxes, labour **CESS** is to be paid by Contractor.
20. The tender may not, at the discretion of the competent authority be considered unless accompanied by attested copies of Valid Registration Certificate, the original money receipt towards purchase of tender documents, GST certificate, Pan card. non- assessment certificate. The original certificates of the same only should be produced before the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for verification with in **3(three)days** of opening of tender, otherwise the bid shall be considered as non – responsive and thus will be summarily rejected.
21. If the contractor removes any materials or stock so supplied to him from the site of work with a view to dispose of the same dishonestly. he should in addition to any other liability. Civil or Criminal arising out of the contract be liable to pay a penalty equivalent to five (5) times the price of the materials or stock according to the stipulated rates and the penalty so imposed shall

- be recovered from any sum that may then or at any time thereafter become due to the contractor or from his security or from the 'proceeds of sales thereof.
22. The contractor should be fully liable to indemnify the department for payment of any compensation under 'Workmen's' compensation Act VIII of 1928 on account of the workman being employed by him and the full amount of compensation paid will be recovered from the contractor.
23. Every tenderer must examine the detailed standard specification of Odisha before submitting his tender. The right is reserved without impairing the contract to make such increase or decrease in the quantities or items of work mentioned in the schedule attached to the tender notice as may be considered necessary to complete the work fully and satisfactorily. Such increase or decrease shall be in no case invalidate the contract or rates. It shall be understood that the Govt. do not accept any responsibility for the correctness or completeness of the quantities shown in the Schedule. The schedules are liable to alternation by omission, or additions and such omissions or deductions shall in no case invalidate the contract and no extra monetary compensation will be entertained.
24. The following materials will be supplied by the Department to the contractor at Godown at the price inclusive of storage charges as noted against each. After issue it will be contractor's responsibility for safe custody and upkeep of materials. He has also to bear all incidental charges such as transportation. Storage handling and return of empty cement bags and empty paint drums at the issuing stores. His rates quoted for the work to be inclusive of all such charges.
- (a) Cement in gunny bags at the rate of Rs-..... Rupees (.) per quintal excluding cost of empty gunny bags
- (b) Paints.
- (c) M.S. Rods will be supplied at the rate of Rs-/Qntl.
- (d) Tor steel will be supplied at the rate of Rs-/Qntl.
25. All the materials which are to be supplied from P. W.D. Stores will be as per the availability of stock and the contractor will have to bear charges of straightening cutting, jointing, welding cranking, hooking etc. of M.S. Rods or tor steel to required size. No cut pieces of M.S. rods, M. S. Angles, Tees & joints etc. will be accepted back as surplus and all these will be contractor's property. After issue from the P. W.D. stores the materials will be under the custody of the contractor and the contractor will be responsible for its safety and storage.
26. Empty cement bags and empty paint drums etc. are to be returned in good and serviceable conditions at the issuing stores failing which Rs (Rupees_) only will be recovered per bag and per drum respectively from the contractor.
27. All reinforced cement concrete work should conform to Orissa Detail standard specification and should be of proportion 1 :2:4 / 1 :1/1/2:3 having minimum compressive strength in work test of 150 Kg / cm² / 200 Kg / Cm² in 15 Cm cubes at 28 days after mixing and tests conducted in accordance with IS: 1456 & 516 using 12 mm to 20 mm size hard black broken granite chips (20 mm size not to exceed 25%).
28. Shuttering and centering shall be with seasoned Sal wood planks and the Inside of which shall be lined with suitable sheeting and made leak proof and water tight or alternatively steel shuttering may be used.
29. The selected contractor may take delivery of departmental materials according to his need for the work issued by the Sub -Divisional. Officer or Assistant Engineer in charge of the work. The contractor shall make all arrangements for proper storage of materials, but no cost for

shed for the storage of materials and pay of watchman etc. be borne by the Dept These are also to be borne by the contractor. The department is not responsible for considering the theft of materials at site. It is contractors risk under any such circumstances if the contractor stops the work he shall have to pay the full penalty as per clauses of the F2 contracts.

30. For the purpose of jurisdiction in the event of dispute if any, contract should be deemed to have entered into within the state of Orissa and it is agreed that neither party to the contract nor the agreement will be competent to bring a suit in regard to the matters covered by this contract at any place outside the State of Orissa.
31. After the work is finished all surplus materials and debris are to be removed by the contractor and preliminary work such as Vat, mixing platform etc. are to be dismantled and all the materials are to be removed from the site. The ground up to 30 M (100 Ft) wide from the building should be cleared and dressed.
No extra payment will be made to the contractor on this account. The rate quoted should be inclusive of all these items.
32. The contractor shall not interfere with the execution of water supply or Electrical fitting arrangements and any other works entrusted to any other agency by the department at any time during the progress of the work.
33. The Department will have the right to inspect the scaffolding & centering made for the work and can reject partly or fully such structures if found defective in their opinion.
34. The contractor will have to arrange for water supply for all works and make necessary sanitary arrangements at his own cost for his labour camp. Contractor has to arrange adequate lighting arrangements for night work whenever necessary at his own cost.
35. Bailing out water from the foundation either rain water or subsoil water if necessary should be borne by the contractor. No payment will be made for bench marks, level pillars, profiles & benching and leveling round where required. The rates quoted should be for finished items of work inclusive of those incidental items of work.
36. All the quantities mentioned in the schedule are combined for ground floor and multi floors in case of multi-storied building and the rates should be through for the same.
37. Cement concrete in roof slab, beams etc. wherever prescribed by the Engineer-in-charge shall be machine mixed and vibrated and the contractor should arrange his own concrete mixers, vibrators, pumps etc. for the purpose.
38. It should be understood clearly that no claim what so ever will be entertained in regard to extra items of works or extra quantity of any items besides estimated amount. A written order must be obtained from the responsible works officer of fisheries department. and rates settled for the extra items of works or extra quantity of any item of work according to clause II of F2 contract The rates of any item not covered in the Agreement will be arrived on derivation from the rate of same class of item of work with any different specification provided in the agreement with addition or subtraction of corresponding cost of materials. In case, no rate can be derived from the agreement, the same will be arrived or derived from the schedule of rates in vogue at the time of actual execution of that item of work.
39. The tenderer shall have to abide by the OPWD safety code rules introduced by the Govt. of India Ministry of Works, Housing & Supply in their standing order No. 44 to 50 Dt. 25-11-57 which can be seen in the office of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack on working hours and days.
40. Tenderer are required by the Fair wage clause as introduced by the Govt. of Orissa, Works Dept. No. CA. VIIIIR 18/52-25 Dt. 26-2-55 & No.11 M/ 56/61-28842 (5) Dt. 27-9-61 in case of

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any complaint by the labourers working about the nonpayment or less payment of his/her wages as per minimum wages act the Executive Engineer will have the right to investigate and if contractor is found to be in default he may recover such amount from the dues of the contractor and pay the due amount to such labourer directly under intimation to the local labour officer and the Govt. and the decision of the Executive Engineer(C) Directorate of Fisheries, Orissa, Cuttack will be final and binding on the contractor

41. The department will have the right to supply at any time in the interest of the work any departmental materials to be used in the work, in addition to those mentioned In the clause and the contractor shall use such materials without any controversy or dispute on that account. The rates of such materials will be at the stock issue rates fixed by the department plus storage charges or market rates whichever is higher.
42. The contractor will be responsible for the loss or damage of any departmental materials equipments supplied to him under clause 13/30 during execution of the work due to reasons whatsoever and the cost of such materials will be recovered from him at the prevailing stock issue rate plus storage charges or market rates whichever is higher.
43. The contractor should arrange at his own cost necessary tools & plants, machines, concrete mixers & Vibrators & other machineries such as pumps etc. required for the efficient execution of the work and the rates quoted should be inclusive of the running charges of such plant and cost of consumables.
44. The contractor will have to submit the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** monthly return of labour both skilled and unskilled employed by him on the work.
45. The tenderers are required to go through such clause of P. W.D. Form No F2 carefully in addition to clause mentioned herewith before tendering. No part of the contract shall be sublet without written permission of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack or transfer made by power of attorney authorizing others to receive payment on the contractor's behalf.
46. If further necessary information is required, the **Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** will furnish such, but it must be clearly understood that the tenders must be received in order and according to instructions.
47. Cement shall be used by bags and weight of one cubic meter of cement being taken as 14.42 quintals.
48. In the event of any delay due to Dept. in the supply of departmental materials or supply of detailed structural designs for unavoidable reasons, reasonable extension of time will be granted on the application of the contractor. But no claim for monetary compensation will be entertained under any such circumstances for which a no claim undertaking has to be furnished by the contractor in the prescribed Performa along with the application for extension of time submitted by him.
49. No contractor will be permitted to furnish their tenders in their own manuscript papers.
50. Every tenderer is expected before quoting his rates to inspect the site of proposed work. He should also inspect the quarries and satisfy himself about the quality, availability of materials, medical aids. labour & food stuffs etc. and the rates should be inclusive of all those Items of work. In every case the materials must comply with the relevant specifications and samples of stones, metals, chips etc. and other materials to be used are to be deposited in sealed bags duly labeled noting the name of quarry under dated initials by the tenderer for approval of the Executive Engineer(C) Directorate of Fisheries, Odisha, Cuttack

51. Govt. will not however, after acceptance of contract rate pay any extra charges for lead or any other reasons in case the contractor is found later on to have misjudged the materials available.
52. All fitting for doors & windows if supplied by the Contractor should be of best quality and should be got approved by the Executive Engineer(C) Directorate of Fisheries, Odisha ,Cuttack before they are used in the work.
53. The tenders containing extraneous conditions not covered by the tender call notice are liable for rejection.
54. The contractor shall have to furnish a certificate along with tender to the effect that he is not related to any officers of the rank of Asst. Engineer and above and any officer of the rank of Under. Secretary & above of the Fisheries Department.
55. All the tenders received will remain valid for a period of ninety days from the date of receipt of tenders. The period of validity can also be extended if agreed to by the Dept. and the contractor.
56. After completion of the work the contractor shall arrange at his own cost all requisite equipment for testing building if found necessary and bear the entire cost of such test.
57. Tenderers are required to submit (1) a list of works in their hands in the prescribed proforma enclosed herewith (2) list of T & P (3) List of works executed along with the tender.
58. Letter etc. found in the tender box raising or lowering rates or dealing with any point in connection with the tender will not be considered.
59. All reinforced cement concrete works like lintels, column, beam, chajja. Roof slab & other such works should be finished smooth and No extra charges for plastering if required shall be paid by the Dept.
60. Tenderers may at their opinion quote reasonable rates for each item of the work carefully, so that the rate for any item should not be unworkable low and other too high.
61. The contractor shall employ one or more Engineering Graduate or Diploma Engineers as apprentices at his own cost for works costing As. 2.5 lakhs or more . The period of employment will commence within one month from the date of issue of work order and would last till the date when 90% of work is completed Number of apprentices employed should fixed by Executive Engineer in a manner so that the total expenditure does not exceed 1 % of the Tendered cost of the work (under works & Transport Dept. No. 67811 Dt. 12-8-67).
62. The tenderer shall bear cost of various incidental sundries and contingencies necessitated by work falling within the following or similar category.
 - (a) Rent royalties and other charges of materials. Octroi duties, all other taxes Including sales tax, ferry/ tools conveyance charges and other cost on account of land and building including temporary building required by the tenderer for collection of materials storage housing of staff or other by the tenderer for purpose of the work. No rent will however be payable to Govt. for temporary occupation of land or owned by Govt. at the site of the work.
 - (b) labourers camp or huts necessary to a suitable scale including conservancy and sanitary arrangements there in to the satisfaction of the local health authorities.
 - (c) Suitable water supply including pipe water supply wherever available for the staff and the labour as well as for the work.
 - (d) Fees and dues levied by the Municipal Canal or water supply authorities.
 - (e) Suitable equipments and wearing apparatus for labour engaged in risky operations.

- (f) Suitable fencing barriers signals including paraffin & electric signals where necessary at works and approaches in order to protect the public and employees from accidents
- (g) Compensation including cost of any suits for injury to persons or property due to neglect or any major precautions and also sums which may become payable due to operation of workmen compensation act.
- (h) The contractor has to arrange adequate lighting arrangements for night work wherever necessary at his own cost.
- (i) The contractor has to arrange all the building materials including equipments required ... undertaking under-reamed piles foundation for starting the work, If required
63. 1% (One percent) of gross amount of the bill be deducted towards Income-tax from the contractors bills.
- 64 (a) If during the progress of work the price of any materials in the work not being materials supplied from the Engineer-in-charge's stores (in accordance with clause hereof) increase or decrease as a result of increase or decrease in the average wholesale price index (all commodities). and the contractor thereupon necessarily pays In respect of that material (incorporated in the work) such increased or decreased price then he shall be entitled to reimbursement or liable to refund quarterly, as the case may be such an amount, as shall be equivalent to the plus or minus difference of 75% in between the average wholesale price index (all commodities) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened. as per the Formula indicated below-

Formula to calculate the .increase or decrease in the price of material

$$V_m = \frac{0.75 \times pm}{100} \times \frac{R(1-IO)}{10}$$

V_m = Increase or decrease in the cost of work during the quarter under consideration due to change in the price of materials.

R = The value of work done in rupees during the quarter under consideration.

IO = The average wholesale price index (all commodities) for the quarter In which the tender was opened as published in the Indian labour journal/Economic Adviser, Ministry of Industries, Govt. of India.

I = The average wholesale price index (all commodities) for the quarter under consideration.

P_m =percentage of material component as per Sub-clause of this clause.

- (b) Similarly, if during the progress of work, the wage of labour increases or decreases as a result of Industrial workers (Wholesale price) which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula Indicated below ;-

Formula to calculate the increase of decrease in the cost of labour

VI = Increase or decrease in the cost of work during the quarter under consideration due to change in the rate of labour.

R = The value of work done in Rupees during the quarter under consideration.

IO = The average consumer's price Index for the quarter industrial workers (wholesale price) for tM quarter in which tender was opened.

I = The average Consumer's Price Index for Industrial workers (Whole sale price) for the quarter under consideration

PI = Percentage of Labour Component as per Sub-clause of this clause

- (c) Similarly, if during the progress of work, the price of petrol. Oil and lubricants (Diesel Oil being the representatives for price adjustment) increases or decreases as a result of the price fixed therefore by the Govt. of India and the contractor thereupon necessarily and properly pays such increased or decreased price towards petrol, PO L and Lubricants used in execution of the work. then he shall be entitled to reimbursement or liable to refund, quarterly as the case may be such difference in an amount, as shall be equivalent to the plus or minus difference in between the price of POL which is operating for the quarter under consideration and that operated for the quarter in which the tender was opened as per the formula indicated below

Formula to calculate the increase or decrease in the price of POL KI =

$$0.75 \times \frac{R}{100} \times \frac{D2}{D1} \times R \times (12-D1)$$

KI = Increase in the cost of work during the quarter under consideration due to change in the price of PO.L.

R = The value of work done in Rupees during the quarter under consideration

D1 = Average price per liter of diesel Oil was fixed by the Govt. of India during the quarter in which the tender was opened.

D2 = Average price per liter of diesel Oil which is fixed during the quarter under consideration.

K2 = Percentage of P.O.L. component as per Sub-clause of this clause

- (d) The following shall be the percentage of materials, labour and P.O.L. Component for reimbursement refund on variation in price of material, labour and P.O.L as per Sub-clause (a), (b) & (c) of this clause.

(Category of Work W	Contractor's supply			Dept. supply of materials
	% of Material	% of Labour	% of P.O.L.	
Imrgn. Works				
(A) Structural works	20%	30%	5%	45%
(B) Earth work, Canal work embankment work etc. e	20%	60%	5%	15%
R & B Work :	20%	30%	5%	45%
(a) Bridge work	45%	40%	5%	10%
(b) Road Work	30%	30%	5%	35%
(c) Building Work				

ick is supplied by the Dept. It should be 20% instead of 30%)

- (e) Reimbursement/refund on variation in price of materials, labour and POL as per Sub- clause (a), (b) and (c) of this sub-clause shall be applicable only in respect of contract of one year or .more provided that the work has been carried out within the stipulated time or extension thereof as for not attributable to contractor. However the original contractual period is less than one year but subsequently it has been validly extended and the period becomes one year or more escalation clause shall be applicable only for the balance portion of work to be executed beyond one year provided the delay is not attributable to the contractor.

- (f) The contractor shall for the purpose of sub-clause (a),(b),(c) of this clause keep such books of account and other documents as are necessary to show the amount of increase claimed or reduction available and shall allow inspection of the same by a fully authorized representative of Govt. and further shall at the request of the Engineer in charge may require any document kept and as such other information as the Engineer-in-charge may require.

The contractor shall within a reasonable time of his becoming aware of any alternation in the prices of such material, wages or labour and/ or price of P.O.L. give notice thereof to

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the Engineer in-charge stating that the same is given pursuant to this condition together with and information relating thereby which he may be in a position to supply No claims for price adjustment other than these provided herein shall be entertained

65. The bidder shall furnish an affidavit in support of authenticity of documents , relaxation of EMD in case of Engineer Contractor along with the bid. The authority reserves the right to verify the authenticity of documents in case of any doubt or complain.
66. The schedule caste / schedule tribe contractors desires to avail the facility of 10% price preference should enclose the copy of their registration certificate stating fact of the caste by their registration authority with the bid, failing which they will not get the price preference as per rule in force.
67. Submission of more than one tender paper by a bidder for a particular work will liable for rejection of all such tender papers.
68. Over and above to these conditions the terms and conditions and rules and regulations as laid down in Orissa Detailed Standard Specifications and Orissa P. W. D. code and it's up to date amendments/contractual provisions are also binding on the part of this contract.
69. Under the circumstances interest is chargeable for the dues or additional dues. if any payable for the work.
70. Items where the rates quoted by the tenders are less than 25% below the current schedule of rates/estimated rates the differential cost between the estimated amount and the tender amount shall be withheld till the completion of such items having low rates.
71. The date of issue of the notice to the contractor to attend **Office Of Executive Engineer[c] Directorate of Fisheries Odisha, Cuttack** for signing the agreement shall be treated as the date of commencement of work.
72. If the contractor quote abnormally low rates for some items and department decide to accept his tender that the Dept. would have the discretion of withholding the differential cost between such highly low rated items and schedule of rates from their payment direct against other items till such low rates items are complete.
73. As goods & service tax has come in to force with effect from 01.07.2017 GST as applicable will be paid extra after gross bill amount prepared.
74. The civil contractor in order to take part in the composite tender should enter into an M.O.U. (Memorandum of Understanding duly notarized) with eligible registered electrical contractor having valid H.T. / L.T. license; for execution of electrical installation and other electrical works and a copy of such M.O.U. should be attached with the tender which shall form a part of tender. A copy of electrical licence, GSTIN Certificate and PAN Card should also be enclosed with the tender papers, the original of which need to be furnished during verification. The above M.O.U. is not required in case of the civil contractor having valid registration in H.T. /L.T. electrical licence with the same name & style.
75. Bidders must furnish their present e-mail address/ fax no./ telephone no. for correspondence.

(Seventy five) clauses only.

**Executive Engineer (C)
Directorate of Fisheries,
Odisha, Cuttack.**

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TECHNICAL SPECIFICATIONS OF P.H. PORTION OF WORK

A. WATER SUPPLY & SANITARY INSTALLATIONS:

Materials of following standard manufacturers are to be used in the work. The contractor shall indicate, in the offer, the brand or make of the materials, for which the rates are quoted.

a. **Sanitary fixtures:**

b. To be of best quality vitreous ware of porcelain. i.

Indian water closet

ii. Foot Rests

iii. Wash Hand Basin

iv. Kitchen Sink

Hindware/Parry Ware / Neycer/ ISI marked v.

Urinals

vi. Drain Board vii.

Odisha Closet

viii. European Water Closet & Low Level Flushing Cistern.

b. **C.I. High Level Flushing Cisterns** : Sushila Industries Prabhat Iron Foundry / East India Steel / I.S.I. marked.

c. **H.C.I. Soil Waste Pipes:** : Confirming to I.S.I. 1729-1954, having I.S.I.

Mark d. **C.P. Bath Room Fittings** : Plaza/ Jaquar I.S.I. marked & confirming to-latest ISS

e. **Brass Fittings** : Shakti/Anupama /Luster/I.S.I.Marked f.

Gunmetal Valves : Anupama /Leader /B.S.I.S.I. marked

g. **G.I. Pipes (Medium Class)** : Manufactured by TATA / JINDAL / B.ST. having I.S.I. Mark

h. **Galvanised Iron fittings** : I.S.I. marked C/R brand

Galvanised Iron fittings

i. **Paints** : Asian /Berger / Jonson/Confirming to I.S.S

j. **Cast Iron Manhole cover frame** : Sushila Industries / Prabhat Iron Foundry / East India Steel make confirming to ISS 7.26

k. **Stone Ware Pipes & Fittings** : Manufactured by Odisha Ceramic Industries / Odisha industries / Keshab Ceramic confirming to I.S.S. Specification No.651 / 1980 {Grade A}

l. **P.V.C. (S.W.R.) & P.V.C (Rigid.) Pipe/Fittings** : Manufactured by the Supreme Industries Ltd., Bombay / Oriplast, Balasore Duroplast confirming to I.S. Specification No. 4985/81 (Class IV)

B. BUILDING MATERIALS:**a. Bricks**

Bricks shall be of locally available best quality kiln burnt. Bricks shall be well burnt, uniform deep red, cherry or copper coloured, free from cracks and flaws, well shaped, uniform in size, homogeneous in textures and shall emit a clear metallic sound when struck, bricks shall have a minimum crushing strength 75 Kg/Cm^2 and shall not absorb water more than 20% by weight.

b. Cement Mortar

Mortar shall be well mixed to a uniform colour and consisting in the proportion as specified in the items of work. Sand shall be measured on the basis of its dry volume and the quantity shall be adjusted for bulking of damp sand. Cement shall be mixed, taking 50 kg. or 0.035 Cum. in volume only required quantity that can be consumed within 30 minutes of adding water shall be mixed at one time.

c. Cement

Cement should conform to IS-269/IS-455

d. Sand:

Locally available best river sand medium size

e. Coarse Aggregates

The coarse aggregate shall be of hard granite stone and shall generally conform to I.S. 389. Porous coarse aggregate shall not be used. The aggregate shall be free from clay films and other adherent coatings. Aggregate containing clay films over the stone materials shall be thoroughly washed. The aggregate shall be from approved quarry and crusher broken. Coarse aggregates shall be composed of particles ranging between the sizes 2.36 to the maximum size as may be specified in the relevant item of work, within the range, the aggregates shall be well graded so as to produce a dense concrete.

f. Reinforcements:

Mild steel Round Bars, coiled twisted and deformed bars of steel of medium tensile strength will be used as reinforcement as per drawing and design and directions. Mild steel bars shall conform to I.S.;226/1962 standard quality or IS:432/1966 - Grade-I. Black annealed wire (Not thinner than 24 gauge for tying the reinforcements shall be used)

TECHNICAL SPECIFICATION FOR SANITARY & PLUMBING WORKS

A. Sanitary Ware & allied fittings:

1. General

All Sanitary fixtures and their allied fittings, should be of first quality, manufactured by Hindustan Sanitary Ware / Parryware / Nycer, These should be approved by the Engineer-in-charge of the G.P.H. Wing before use.

2. Squatting Pattern W.C. (pan) (Odisha Pattern Closets):

The water closet shall be of vitreous China of specified size and pattern, with an integral flushing rim. It shall have the flushing inlet at the back. The Odisha closet should be of approved quality confirming to I.S.S.-2656 (Part-III).

The squatting type Indian Water Closet (Odisha Closet) shall be sunk in floor sloped towards the pan in a workmanship like manner. The closet shall be fixed on a proper cement concrete base of 1.3.6 proportion, taking care that the cushion is uniform and even, without closet, to receive the specified thickness of the floor finishing. The joint between the Closet and the P.V.C. (S.W.R) trap shall be made with W.C. ring and rubber lubricant and shall be leak proof.

3. Flushing Cistern

The flushing of the Indian water closet (Odisha Closet) shall be done by C.I. or Polyaterine High Level low-level porcelain valve-less syphonic flushing cistern of approved brand and quality I.S.I. Marked and capacity as specified. The connection between the cistern and water closet shall be made by 32 dia O.I. flush pipe, made from G.I. Pipe (Light Quality) or 32 dia P.V.C. Pipe as specified in the tender schedule. The flush pipe with an offset should be fixed to wall by using C.I. Holder Bat Clamps. The capacity of the cistern should be 10 Ltrs. as per I.S.S. 15 Ltrs. In case of low-level cisterns. The Cistern shall be fixed on cast Iron or Rolled Steel Cantiliver Brackets (Bulltin type), which shall be firmly embedded in the wall, with C.C. 1.2.4. The Cistern shall be provided with 20mm dia P.V.C. Overflow Pipe with fittings, which shall terminate into mosquito proof coupling secured in a manner that will permit it to be readily cleaned or renewed.

The 32mm dia Flush Pipe shall be connected to the Water Closet by means of approved type joint. The Flush Pipe shall be fixed to wall by using C.I. Holder Bat Clamps. The bend and the Offset as required in the Flush pipe shall be made cold. The inside of the Cistern shall be painted with two coats of approved black bitumen paint. The Outer face of the Cistern, Brackets Overflow pipe and Flush Pipe etc., shall be painted with two coats of any synthetic enamel paint of approved shade and make, over a coat of priming. The cost of the rate quoted for the flushing cistern. The inlet connection to the Cistern shall be made with 450 mm 1 cmg 15 mm dia P.V.C. Heavy type connection Pipe.

4. Wash Hand Basin

The Wash Hand Basin shall be of the White Vitreous China of approved quality, make and brand I.S.I, marked. It shall be one-piece construction with an integral combined overflow. The size of the basin shall be as specified. Each basin shall be

provided with one 15 mm dia C.R Brass Pillar Tap, 32mm dia C.R Waste, C.R. Chain and Rubber Plug, Unions, Joints, C.P Bottletrap cast complete in all respects of approved quality.

The Basin shall be supported on a pair of R.S. or C.I. Cantilever brackets (built in type) embedded and fixed in wall with cement concrete, 1.2.4. These brackets shall be painted to the required shade with two coats of approved synthetic enamel paint over a coat of priming.

The waste of the Basin shall discharge into a floor trap or Channel through bottle traps as specified. One 32mm dia C.P. Bottle Trap is to be fixed to the Waste of the Basin & the outlet of the bottle trap is to be connected to the waste pipe to discharge the waste to the Pipe, to discharge the waste to the aforesaid floor trap. The inlet connection to the Basin shall be made with 450mm Long 15mm dia Heavy type P.V.C. connection pipe.

5. Kitchen Sink

Unless otherwise mentioned the Kitchen Sink and drain board (if used) shall be of white Vitreous China or fire clay as specified and approved quality, make a brand, confirming to T.S.S, It shall be of one piece construction with integral combined overflow. The size of the sink and Drain Board shall be as specified.

Each Sink shall be provided with one 15mm dia C.P. brass, Bib Cock, long body, 40mm C.P. Waste with overflow C.P. Chain & Rubber Plug, unions etc., complete in all respects as specified and of approved quality.

The sink shall be supported on a pair of M.S. or C.I. Cantilever Brackets (Built in type) embedded or fixed in position in the wall by Cement Concrete 1.2.4. The brackets shall be painted to required shade with two coats of approved synthetic enamel paint over a coat of priming. The waste should discharge into a floor Trap or Channel. The waste pipe should be 40mm dia P.V.C. Pipe jointed to the waste of the Sink with a Brass union nut.

6. Standing Urinals

The Urinals shall be flat pattern lipped front basin of required dimension of White Vitreous China and one piece construction with internal flushing box rim of an approved make and brand as specified. It shall be fixed in the position by*using wooden plug embedded in the wall with screws of proper size. Each Urinal shall be connected to a 40mm dia P.V.C. Waste Pipe, which shall discharge into a channel of floor trap. The lip of Urinals shall be kept at 525mm from floor level, while fixing the Urinal on wall.

Where no. of Urinals are fixed in a line, the distance between the centres to centre of each Urinal shall be kept 750mm. and each Urinal should be separated from one to other by a partition plate. The centre to centre of partition plates shall be kept 750mm apart. The partition plate shall be of one-piece 25mm thick marble plates, cut to size and front corners rounded. The partition plates shall be embedded in wall with cement concrete and finished smooth. The bottom of the partition plate should be kept

350mm above floor level and top should be kept at 1250mm above floor level. The plates should project 600mm from wall surface. The width of the plates to be embedded inside the wall should not be less than 100mm. The thickness of the plates shall be minimum 25mm.

For flushing the Urinals each Urinals shall be connected with one 20mm dia G.I. Pipe

(Medium Class), One of this pipe shall be inserted into the inlet of the Urinal and jointed with Jute and putty where as the other end is connected either with a Tee or Bend with the 25mm dia size Water Pipe Line fixed on the wall horizontal above the Urinals. In each 20mm dia flush pipe one 20mm dia cum-metal Gate valve, the water will flow to thermal of Urinal through the inlet pipe and flush the Urinal. After flush, the valve can be closed to avoid wastage of water. One 40mm dia P.V.C. Waste Pipe shall be connected to the waste of each Urinal, to discharge the Waste into the Channel of Trap. One end of this Waste pipe shall be made a cup size to fit into the projected waste and tightened with screws.

7. Squatting Urinal Plates

The Urinal Plates shall be of White Glazed Vitreous China with integral flushing rim of size 450 X 350mm of approved make and brand as specified. There shall be white vitreous channel with stop and outlet pieces in front. These plates shall be fixed on C.C. at 75mm to 100mm above floor level.

For flushing arrangement, one 25mm dia G.I. Common Water Pipeline (minimum size) shall be fixed on the wall parallel to floor. For each urinal one 20mm dia G.I. Branch Pipe shall be taken down up to 200mm from floor level just at the centre of each plate, in which one 20mm dia Gate Valves is fixed at 350mm above floor level. At 1200mm height, the 20mm dia flush pipe shall be divided into two branches shall be taken downward and connected to the inlets of the urinals plate at floor level. By operating the valve as above, the water will rush into the rims of the urinal plate and flush it.

Where there are number of urinals fixed in a line, each urinal should be separated by a partition plate fixed in the centre of two urinal plates. The centre-to-centre distance of the partition plates shall be kept 750mm.

The partition plates shall be of one-piece marble plate, 25mm thick, cut to sizes and front corners rounded. The plates are to be embedded in wall with cement concrete and finished smooth. The bottom of the partition plates shall be kept flushed to urinal top level and the top level of partition plate shall be kept at 1200mm from the urinal plate top and the projection from the wall shall be 600mm. The width of the plate to be embedded inside the wall should not be less than 100mm.

B. Soil and Waste Pipes and fittings

1. H.C.I. Pipe Fittings

The Cast iron Soil, Waste and design pipes (spigot & socket joints) shall be of make and brand as specified (under specification of materials), confirming to I.S.S. 3989-1970 and ISI marked with approved clamps are to be used. The pipes and fittings shall be free from cracks, laps, pinholes, and other imperfection and carefully cited. The access door fittings shall be designed and made so as to avoid dead space in which filth may accumulate and door shall be provided with 3mm thick rubber insertion packing when closed and bolted.

WEIGHT OF HCL PIPES

2.	Dia of Pipe in MM	Thickness in mm	Length of pipe & width piece	
			1.8 Mtr. D/s	1.8 Mtr.
	50 mm	5 mm	16.00 Kg.	15.00 Kg.
	75 mm	5 mm	13.83 Kg.	16.52 Kg.
	100 mm	8 mm	24.00 Kg.	22.00 Kg.
	150 mm	8 mm	26.70 Kg.	31.82 Kg.

Tolerance 10%

3. The jointing should be done with pig lead confirming to I.S. 782-1966 - grade 99.94.
The spigot end of Pipes and Fittings should enter into the socket end. The annular

space shall be packed with spun yarn gasket, compacted so as to leave a depth for receiving required quantity of lead in a continuous pouring from ladder. After pouring lead in the joints in full, caulking is to be done three times round with the caulking chisels, so that the joints may be sealed with lead. The depth of lead in a point should be 35mm and the rest depth of the joint should be packed with spun yarn Gasket.

4. Requirement of lead and Gasket cement for jointing H.C.I. Pipes (Each Joint)

Dia of pipe in mm	Lead in Kg.	Gasket in Kg. (Same for lead & cement joint)	Cement Kg.
100	1.2 Kg.	0.13 Kg.	0.12 Kg.
50	0.36 Kg.	0.06 Kg.	0.06 Kg.

5. The inside of the pipes and fittings shall be well coated with special tar or bitumen solution of approved quality. Where the pipe and fittings are laid below the ground, the outer surface of the pipes and fittings shall also to be painted with two coats of black anticorrosive paint of approved quality. On completion of the work, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour & quality over a coat of red oxide primer. The cost of paint should include in the rates.
6. Soil pipes for ventilation Is to be connected to the sewer at its floor and without a trap and be carried to such a height, at least above roof level, to prevent damage to health by commission of foul air, The pipe shall terminate as open and protected by a cowl.
7. The waste water pipe shall be connected with the nearest yard gully or a surface drain.
 8. The traps should be of hard cast iron and should have a water seal at least 50mm deep.
9. All the soil and waste pipes and fittings, after laid and fixed shall be smoke tested, to the entire, satisfaction of the Engineer-in-charge. The Cost of testing is to be included in the offer. For smoke-test the materials usually burat greases cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped to the drains from the lower end from a smoke machine, which consists of lower, and burner.

a) **P.V.C (S.W.R.) & P.V.C. (Rigid) Pipes & Fittings**

The P.V.C. (S.W.R.) and P.V.C. (Rigid), soil Waste & Vant Pipes (Spigot & Socket, & couples joints), shall be of make & brand as specified (Under Specification of materials) confirming to I.S.S., B.S.S. & DIN are tube used.

The main specification of P.V.C. Soil & Waste pipes and fittings are as below.

- | | | | |
|----|--|---|--|
| a) | Materials | : | Un-plasticized Poly Vinyl-Chloride (UPVC) |
| b) | Color | : | Grey |
| c) | Dimensions | | |
| | i. Diameter | : | Fittings - 75mm/110mm/63mm & 63mm |
| | Pipes | : | 75mm, 110mm, on lengths of 3.or 6 mtr |
| d) | Wall thickness | : | Fittings - Minimum 3.2mm at any port |
| | Pipes | : | As per application |
| | For Rainwater | : | 75mm-1.8 to 2.2mm, 110mm-2.5 to 3mm |
| | Waste & Soil | : | 75mm -1.8 to 2.2mm, 110mm -2.5 to 3 mm, 63mm |
| | Underground drainage with light /NIL – Traffics | : | 110mm - 2.5 to 3mm |
| | Light /NIL in Heavy Traffic | : | 110mm 3.7 to 4.3mm |
| e) | Standard Confirming to Attributes Confirms to Standard No. | | |
| | i. Fittings & Wall B.S.4514, DIN 10531 thickness | : | DIN 19534 I.S.7834 - PVC (Rigid) |
| | ii. Pipe Wall thickness | : | IS 4905 |
| | iii. Rubber ring | : | IS 5382 |

- iv. Fitting dimensions : DIN 19531 - P.V.C., DIN 19534 – S.W.R. IS - 7834 V.C. (Rigid)
- v. Pipe Dimensions : IS 4985

b. Laying instructions & Jointing Procedure

1. Jointing of P.V.C. (S.W.R.) Pipes & Fittings

Clean the outside of the pipes spigot and the inside of the sealing groove of the fitting. Apply the rubber lubricant, to the spigot end, sealing ring and pass the spigot end into the socket, containing sealing ring, until fully homed. Mark and position of the Socket edge with pencil on the pipe, then withdraw the pipe from the socket by approx. 10mm towards thermal expansion gap.

2. Fixing of the Pipes and fittings on wall surface

P.V.C. pipes both (S.W.R.) & (Rigid), fixed on wall surface, are to be supported by P.V.C. pipe clips, specially made for these pipes, with horizontal runs, the pipe clips should be spaced at intervals of more than 10 times the outside diameter of the pipes. In vertical lines the clips are to be spaced at intervals of one meter to a maximum of two metres according to pipe diameter.

3. Jointing of P.V.C. (Right) Pipe Fittings

Clean the Outside of the pipes and inside of the socket of a fitting of the inside of the couplers (where 2 plain ended pipes are jointed) of. Apply solvent cement solution, evenly and smoothly on the outer surface of the pipe end and inside surface of either the coupler of the socket and pass the pipe end into the socket of the fittings. Up to full depth of socket. In case of jointing 2 plain-ended pipes 1st. push the coupler up to half depth on the end of one pipe and the outer half of the coupler should be pushed to the end of other pipe and thus, both pipes are jointed.

4. Fixing of P.V.C. pipes and Fittings through holes of Walls or Chajja of roofs etc.

The Wall/concrete slots should allow for a stress free installation, Pipes and fittings to be inserted into the slots, without a cement base, have to be applied first with a thin coat of P.V.C. Solvent cement, followed by sprinkling of dry sand (medium size). Allow it to dry. This process gives a sound base for cement concrete fixation, around the pipes/fittings while mending the damages.

5. Anti-syphonage Pipes

All the anti syphonage pipes and fittings to be used are of 63mm. If these are not available under the items of P.V.C. (S.W.R.) materials, 63mm pipes and fittings, manufactured under P.V.C.(right) materials can be used, since the raw materials for both is same.

- 6.** All traps should have a minimum water seal of 50mm as per I.S. 5329 and IS 2556 (Part XIII). Where anti syphonage connection is required, the traps to be supplied and used should have a 50mm anti syphonage gend horn on the outlet side. All the Traps used with the closets, should be of the size 125mm X 110mm i.e. Inlet (Socket end) of 125mm & outlet (spirit end) of 110mm only.

7. Installation of Water Closet

Determine the correct Location of the P/S Trap & set on a firm base, relative to the floor finish by pouring concrete on a slab. Bedding can be carried out by pouring concrete around the trap, ensuring that the traps outlet is left clear of concrete. Place the W.C. Connector ring to the socketed end of 125/110mm R/S trap. Apply rubber lubricant on W.C. Connector ring as well as outer side of water closet (connection point) and now complete the joint by pushing the W.C. to home of 125mm socket of the trap.

8 P.V.C. (Rigid) Pipes and Fittings

63mm (O.D.) P.V.C. Pipes to be used for these work either in anti syphonage system or elsewhere, should be of "Quick Fit" Pipes Class 2 (4kg. F/Cm²), Quick Fit, Pipes have one end socketted. The P.V.C. (Rigid) fittings, such as 63mm elbow, 63mm equal Tees 110mm x 63mm reducer etc. used in the work, should be of injection-moulded fittings.

9. One -'jointing rubber ring will be available, with each P.V.C. (S.W.R.) pipe and fitting and hence, the cost of therein will not be added in the joint.

10. Measurement

All pipes shall be measured not/length as laid or fixed and shall be measured over all fittings such as bends, junctions, traps etc. The length shall be taken along the counter line of the pipes and fittings. Fittings will be counted extra over.

11. Before fixing and painting, the pipe shall be tested hydraulically to pressure 0.4 Kg/Cm^2 for pipes under I.S.- 1729/1964 and at a pressure 0.7 Kg/Cm^2 for pipes under I.S. 3989-1970 without showing any sign of leakage, sweating of or her defect of any kind. The pressure should be applied internally and shall be maintained for not less than 15 seconds.

c) Water Supply Pipes and Fittings

1. Materials.

All galvanized Iron Pipes are to be of mild steel continuous welded, screwed tubes, medium quality conforming to I.S.S. and bearing ISI Marks manufactured by reputed Firms and approved brands as specified. The pipes shall confirm to LS.1239 (Part-I) -1975. All G.I. Fittings shall be of 'R' Brand manufactured by M/s. R.M. Engineering Ltd., Ahmadabad and 'C' brand manufactured by Present Engineering works or equivalent best quality.

2. Laying of Pipes

The lay out of the mains and service pipe set etc., will be done in accordance with the drawings. The contractor is to mark out the exact position of the pipes and fittings at site and take approval of the Engineer In-charge, before taking up the work.

3. Where the Pipes are laid, underground these must not be laid less than 450mm below ground level and coated with one coat of approved black bituminous paint. For laying the G.I. pipes and fittings below ground level, the width and the depth of the trenches for different dimensions for the pipes shall be given as below :

Dia of Pipe	Width of Trench	Depth of trench
15 mm to 50 mm	300 mm	600 mm
65 mm to 100 mm	450 mm	750 mm

The pipes shall be laid on a layer of 75mm thick sand and filled up with sand up to 75mm above pipes and the remaining portion of the trench shall then be filled up with proper ramming as described in "GSTIN and refilling". The surplus earth shall be disposed of as directed. Thrust or anchor blocks of cement concrete 1:2:4 in hard granite chips shall be constructed on all bends or branches to transmit the hydraulic pressure without impairing the ground and spreading it over a sufficient area. Pipes shall not be laid to pass through manholes, catch pit, drain, where, it is unavoidable the pipes shall be carried in sleeve pipe of M.S./G.I., as approved by the Engineer-in- charge. The rate should include such a situation.

4. Where Pipes run along walls, the same are to be fixed to the wall with holder bat clamps /M.S. Hooks as below.

Dia of pipe in mm	15	20	25	32	40	50
Horizontal line	2m	2.50m	2.50m	2.50m	3m	3m
Vertical line	2.5m	3m	3m	3m	3.5m	3.5m

Where the pipes are passing through the R.C.C. / Masonry wall / Column / beam or pillars, these must pass through the appropriate higher sizes of C.I/G.I Sleeve Pipes and are to be included in the rates. In case the pipes are embedded in walls and floors it should be painted with one coat of anticorrosive paint of approved quality.

All pipes should be fixed horizontal and vertical. For taking the pipes through the walls and floors & roof slabs etc. the holes shall be made by filling with chisels or jumper and not by dismantling the brickwork or concrete. After fixing, the holes shall be made good with cement concrete 1:2:4 and properly finished with C. Plaster 1.4 to match the adjacent surface. Union Nuts are to be provided in each of the vertical riser or drop on and from G.I. Tank and near the Valve and as and where necessary. The long screw fittings of 3 mtrs. for long horizontal lines and inside the GSTIN /Kitchen etc.

5. After laying and jointing the pipes and fittings shall be inspected under working condition of pressure and flow. Any joint found leaking pipes should be removed and replaced without extra cost. The pipes and fittings after they are laid shall be tested to hydraulic pressure of 6 Kg/Cm². The test pressure should maintain without loss of for at least half an hour.

6. Painting

On completion of the test, the exposed pipes and fittings are to be painted with two coats of synthetic enamel paint of approved colour and brand over a coat of priming.

7. Measurement

The length shall be measured in running meter. Correct to centimetre for the finished work, which shall include the pipes and fittings such as Bends, Tees, Elbows, etc., but excludes brass or Gun-metal fixture like tap, Cooks, Valves, PVC connection pipes etc.

8. Ball Valve

The ball valve shall be high or low pressure class as stipulated in the Tender Schedule and shall confirm to I.S. 1703-1968, The nominal size of ball valve shall be that corresponding to the size of Pipe for which it is used. The Ball valve shall be of brass or gun-metal and the float for low pressure polyethylene and for high pressure in copper. Each and every ball valve while in closed position shall withstand and internally applied hydraulic pressure of 20 Kg/Cm² for a minimum period of two minutes without leakage or sweating.

Every high pressure ball valve when assemble in working condition, with the float immersed to not more than half its volume shall remain closed against a test' pressure of 10.5Kg/Cm² and a low pressure ball valve against a test pressure of 5.3 Kg/Cm².

Polyethylene floats shall be watertight and non-absorbent and shall not contaminate water and with do jointing adhesive jointing parts. The minimum thickness of the copper sheet used for making copper floats shall be of 0.45 mm. The thickness of materials of the float shall be uniform throughout.

9. Ferrule

The ferrules for connection with C.I. main shall generally confirm to I.S. 2692-1964 and shall be of nominal bore as specified. The ferrule shall be fitted with 3 screw and 1 plug or valve capable of complete cutting off the supply to the connected pipe as and when required. For fixing the ferrule, the C.I. main shall be drilled and tapped during non-supply hour at 45 to the connected Pipe as that when required. The ferrule must be so fitted, that no portion of the sunk shall be left projecting within the main on which it is fitted. After the ferrule is connected, one C.I. bell mouth cover or with bricks (as specified) shall be kept over the ferrule to cover the

ferrule to protect it and the cost thereof is to be included in the item, even if there is no mention.

10. Non-return Valve (Check Valves)

The non-return valve shall be of Brass or Gunmetal and shall be of horizontal or vertical flow type and of the size as specified and confirm to I.S. 7810-1959 and I.S. 778-1957. The approximate weights of the valves are given below.

Dia in mm	Horizontal type (in Kg)	Vertical type (in Kg)
15	0.30	0.25
20	0.55	0.25
25	0.90	0.75
32	1.25	0.90
40	1.70	1.20
50	2.90	1.45
65	5.25	2.15
80	7.70	4.10
	± Tolerance 5%	

11. Foot Valve

Foot valve is generally placed at the lower end of the suction pipe of the centrifugal pump to prevent the suction pipe from emptying. On vertical non-return valve may also be fixed in place of foot- valve. The foot valve shall confirm to I.S.038-1967.

12. Water meters (Domestic types)

Water meter up to 50mm nominal size shall confirm to I.S.-779-1968. The meter body shall be of bronze/ Gun-metal and marked to read in liters complete with registration box and lid. The water meters shall be provided with Strainers. Strainers shall be of material, which is not susceptible to electrolyte, clean and shall be fitted on the inlet side of water meter. It shall be possible to remove and clean the strainer and not permit disturbing the registration box. The offer should include the same. The water meters shall bear ISI Mark.

13. Bibcock & Stopcock

These shall confirm to I.S.781-1967 and bear ISI Mark. The bibcock is a draw off tap with a horizontal inlet and free outlet and stopcock is a valve with a suitable means of connection for Insertion in a pipeline for controlling or stopping the flow. This shall be of screw down type. The cock shall open in anti-clockwise direction. The stopcocks should be of C.P open type/concealed type/angle valves type as specified in tender schedule. Bibcock should be also C.P Brass bibcock.

14. Full way Valve (Brass)

Full way valve is a valve with suitable means of connection for insertion in a pipeline for controlling or stepping the flow. The valve shall be of brass fitted with a cast-iron wheel and shall be of gate valve type confirming to I.S, 780-1960, opening Full way and of the size as specified.

Dia in mm	Flanged End Valves in Kg	Screwed End Valve in Kg
15	1.021	0.567
20	1.503	0.680
25	2.498	1.077

CONTRACTOR

TENDER OPENING OFFICER

32	5.232	1.559
40	6.082	2.268
50	6.691	3.232
65	10.149	6.840
80	13.281	8.845

15. Gun Metal Full way Valve

This shall be of the Gun-Metal fitted with wheel and shall be of Gate-Valve type opening full way. This shall confirm to I.S, 778-1971. Class I. The Valves should bear ISI Mark.

TECHNICAL SPECIFICATION FOR STONEWARE PIPE ETC

1. Stoneware Pipes (Materials)

The S.W. pipes & fitting should be of Grade 'A' confirming to I.S 651/1965. The pipes shall be sound, free from visible defects such as fire crack or hair crack and flow or blister. The pipes shall give a sharp clear line when struck with a light hammer and should be perfectly salt glazed.

Internal dia of pipe in mm.	Thickness of the Barrel in mm.	Weight of each pipe in Kg.
100	12	14
150	16	23
200	17	33
230	19	44
250	20	52
300	25	79
350	30	100
400	35	125
450	38	147

The length of pipes is 600 mm exclusive of the internal depth of socket.

2. GSTIN of Trench for laying Sewer Pipes

The trenches for the pipes shall be GSTIN to the lines & level as directed. The bed of the trench shall have to be evenly dressed throughout from one change of grade to the next. The gradient is to stout by means of sight rails and boning rods and required depth be GSTIN at any point. The depth of the trench shall not less than one meter, measured from top of the pipe to the surface of the ground under roads and not less than 0.75m elsewhere. The width of the trench shall be the nominal diameter of the pipe plus 350m. The bed of the trench if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with sand and consolidated in 200mm layers. Depending on soil condition, piling may even be necessary if so desired by the Engineer In- charge. If rock is met with, it shall be removed 150 mm below the level of the pipe and the trench will be refilled with sand and consolidated.

The GSTIN materials shall not be placed within One Mtr. or half of the depth of the trench whichever is greater from the edge of the trench. The trench shall be kept free from water. Shoring and shuttering shall be provided wherever required. GSTIN below water level shall be done after dewatering the trenches.

After the GSTIN of the trench is completed, foundation of cement concrete 1.4.8 in hard granite metal (size 40mm) shall be laid with proper level all along under the length of the pipe

with launching on all around concrete as per drawing.

3. Laying, Jointing, haunching of the Pipes and fittings.

Drain Pipes (S.W. pipe & other pipes used for drain and Sewer) shall be laid in straight lines and to the even gradients as shown in the layout drawings. The socket and of the pipes shall face stream. A dequate care shall be exercised in setting out and determining the level of the pipes and the contractor shall provide suitable instruments, templates, sight rails, boning rods and other equipments necessary for the purpose. In the case of pipes with joints to be made with loose collars, the collars shall be slipped on before the next pipe is laid. In those joints, a tight ring of twisted tarred jute soaked in cement mortar filling to ensure proper alignment and prevent. Cement entering the pipes, Cement compound joints is to be finished with proportion 1:1 with 45 beveling. The joints are to be kept wet with wet bag until the same are properly set with. The cement mortar joints shall be cured at least for 7 (Seven) days.

In the case of S.W. Pipe joints (socket & spigot), they should be caulked first with tarred jute (Spun) of required diameter, almost quarter depth of the socket, after which cement mortar 1:1 is pushed in with wooden chisel and finishing beveled at outside at 45 degree. Instead of jute of hump rubber gasket of proper size may also be used. The whole joint must be cured for not less than three days. In case of pipes less than 250m dia, joints should be made at ground level with three pipes at a time and for larger ones two pipes at a time and after curing they should be soiled in foundation with the help of the ropes. All pipes should be properly launched with cement concrete 1.3.6 with washed gravel where the pipes are crossing the drain or all round concrete 1.3.6 with washed gravel is to be done to 150 mm thick over the barrel of the pipe. The whole of the drain work shall be tested when laid, and at the completion of the contract, to the satisfaction of the Engineer-in-charge and shall be retested if necessary until found satisfactory. The test shall be made by means of water under pressure at the highest point of the Section under test and providing an air pipe at the lower end of the line. Maximum head of 5 (five) fact (1.5m) must be maintained.

4. GSTIN and refilling.

GSTIN for drain and pipe trenches shall be straight and to correct depth and gradient. The trench bottom shall be of required width as per specification to allow working space for pipe jointing.

GSTIN materials shall be dumped away from the site as directed by Engineer-in-charge. Suitable precautions are to be taken to prevent in flow of water into the GSTIN area, during construction.

The contractor at his own expense shall pump out or otherwise remove any or all water which during the continuance of contract may be found in the GSTIN trenches to keep the trench clear of water during the work under progress. The pipeline shall not be refilled and covered, until the line therein has been passed and tested.

5. Buried Services

All pipes, cable mains and other services exposed by the GSTIN shall be effectively supported by timbering or other means for which no extra payment will be allowed. The contractor shall be responsible for any damage occurring to buried services and make good the same at his own cost to the satisfaction of the Engineer-in-charge.

6. Trench condition

Where a trench is GSTIN and refilled after laying the pipe, settlement of the earth in the refilled trench take place. The filling above the top of pipe, settles relatively, more than the sides of the trench, thereby developing frictional resistance. The contractor is required to take special precaution against this, while refilling the trenches. Procedure for backfilling as stipulated earlier should be strictly followed.

7. Inspection Chambers/Manholes

At every change of alignment, gradient or diameter of a drain there shall be a manhole or Inspection Chamber. The maximum distance between manhole chamber shall be 30 metres for the line laid straight.

All manhole and inspection chamber shall have internal dimension as shown in drawing and B.O.Q. The depth of invert shall be fixed to the gradient. The foundation for Manhole shall be 175mm thick & with cement concrete 1.3.6 in hard stone metal / granite metal of 40mm size. The concrete shall project 150mm beyond the external faces of the brickwork.

The brick masonry shall be done in cement mortar in the proportion of 1:4 and thickness of the brick wall should be 250mm thick up to 1200mm depth from Ground Level and beyond that the wall thickness shall be maintained 375mm. The inside surface of the walls of the chamber, shall be finished with cement plaster 1.3 and outside with cement pointing 1.3. In addition to this, the inside surface should also be provided with cement punning.

On the top of base concrete channeling on C.C. 1.2.4 with granite chips is to be done keeping the diameter equal to the dia of drain pipe and depth equal to half of the dia of pipe. The channel, 'should be done longitudinally at the centre, connecting both the ends of the pipe. The channel is to be hunched up with concrete 1.2.4 with hard granite chips of size

12mm sloping upwards from the edge of channel to meet the side of chamber at gradient of 1:6. The channel and benching are to be finished smooth and cement mortar 1.3 and punning unless it is unavoidable. The branch should deliver sewerage in the Manhole in the direction of main flow and the junction must be made with care so that the flow in the main is not impeded. Channels for drains coming from the side of the Manhole Chamber, shall be curved to meet the main drainage channels.

The Manhole and Inspection Chambers shall be covered with R.C.C. cover slab of thickness

100mm to 150mm according to the requirement at site. One C.I. Manhole cover of diameter and weight as stipulated in the tender schedule shall be fixed, on the cover slab. Unless otherwise mentioned the C.I. Cover and Frames and shall conform to I.S. 1726/1960. Heavy duty covers etc., under heavy vehicular traffic condition and capable of bearing wheel loads up to 11.25 tons, are to be used and medium duty under light type wheel traffic loads and light duty for domestic premises are to be used. Covers and Frames shall be clearly cast, double water seal type and they shall be free from all sand holes. The cover shall be gas tight and water tight with proper water-seal. The C.I. Cover and frame shall be coated with two coats of black bituminous paint. The frame of Manhole cover shall be fixed on the slab while the slab is cast. R.C.C.M.H. covers of 50cm dia and 100mm thickness shall be fitted in line of C.I.M.H. cover if stipulated in the bill of quantity of the tender schedule.

8. Gully Trap Chamber

The size of chamber for 100mm HCI yard gully shall be of 250mm X 250mm (Inside). Foundation with 100mm thick cement concrete 1.3.6 with hard granite metal of size 40mm from outer surface of wall and Brick work in cement mortar 1.4, 125mm thick, depth up to 600mm maximum. The finishing of masonry wall both inside and outside should be done in

cement mortar 1.4 cement punning should be provided on the inner surface the trap should be burried in cement concrete 1.2.4 in H.G. chips up to the mouth and one hinged C.I. Grating of size 300mm x 300mm are to be fixed on the top of mouth of Gully trap to arrest rubbishes shall be provided. The foundation, should project 75mm from outer.

9. Kota/ Marble Stone flooring

The Kota/Marble stones shall be of thickness specified but not less than 20mm and of uniform with edges absolutely square & straight. They shall be laid in Cement Mortar (1.4) over masonry or concrete base. The sides of the stones shall be arranged to butt against each other truly so as to came the joints practically invisible and certainly not more than 0.8mm in width anywhere. The joints shall not be filled with mortar but may afterwards be grouted with neat white cement mixed with matching colour pigment. When the floor has completely set, it, should be polished with pumice stone and finally with pads of felt.

10. Glazed tile dado

The glazed porcelain tiles shall be of approved size and thickness 5mm to 6mm with edges absolutely straight & surface accurately plain. They shall be fixed in 6mm. thick cement mortar 1.3 using cement slurry over pre-cement plastered base. The sides of the tiles shall be arranged to but against each other truly so as to make the joints practically invisible. However, the joints may be granted with white cement mixed with colouring materials to match the tiles and neatly cleaned leaving no trace of excess grouting materials. The tiled surface and edges should be perfectly vertical and straight. The corner points must be normally right angled unless the site condition demands otherwise.

ADDITIONAL APPENDIX TO BILL OF QUANTITY (For P.H. Items of Work)

1. The quantities of items mentioned in the tender schedule may increase or decrease during execution of works but the contractor will complete the work as per his tendered rates in accordance with the instruction of Engineer in charge of G.P.H. wing.
2. **Specification:** The standard PHD and PWD specification will be followed for execution of work. During the course of execution of work, the instructions of the Engineer in charge shall be final and binding.
3. The Sales Tax element should not be added to the analysis of rates and the previous practice should be followed as per the Works Department letter No.IIT.22-89-18170 dt.18.7.1989.
4. There should be no clause either in the tender or in agreement for payment of any additional claim on account of Sales Tax on completed works which will be deemed to be recovered by existing omnibus stipulation as per the works Department letter No.TIT 22/89-18170 dt.18.7.89.
5. It is the responsibility of the Contractor to arrange watch and ward to the installations until testing commissioning and handing over for which no extra payment towards watch and ward will be paid,
6. The contractor shall maintain a separate site order book for P.H. portion of work.
7. The P.H. portion of work shall be open for inspection by the authorities of P.H. Circle (R&B) Odisha, Bhubaneswar and the higher authorities and instructions imparted during the course of Inspection should be binding on the contractor.

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8. Materials not covered by any of the above categories of items in the bill of quantity have to be approved by the competent authorities before utilizing the 'same in works. In such event, the payment of such item will be made as per actual on due approval by the competent authority.
9. All materials required for the work shall be supplied by the contractor as per standard specifications appended with due approval by the Engineer in charge of G.P.H. Wing.
10. In case the materials as per make specified are not available, the materials of equivalent make and as per I.S. Specifications or of best quality when not covered by I.S. Specifications can be utilized on prior approval of concerned S.E./ E.E., GPHD (R&B) Circle/Division or the officers duly authorized. It is binding on the part of the contractor to use such items of materials which are available in the Departmental store and in such case the deduction from the bills will be made at stock issue rates.

TECHNICAL SPECIFICATION OF INTERNAL ELECTRIFICATION WORKS

The details of internal wiring, the position of fittings, fans, switches and plug sockets etc. are indicated in the layout drawings. The position of light fittings, fans, switchboards etc. indicated in these drawings are only for the guidance of the supplier and the actual position of these shall be mutually decided between the supplier and the purchaser. The supplier shall submit the purchaser of his consideration and approval all runs of wiring and the exact position of all the points and the switch boxes first marked on the points buildings.

All internal wiring shall be done in conformity to the latest Indian standard specification/Rules, code of practice adopted by CPWD and other standard practices prevalent in the part of the country. For the purpose of the specification the terminology used shall be as defined in IS:732 and IS:1356 of the definition of points wiring. The installation shall be carried out in conformity to all requirements of IE Act, 1910 and IE Rules 1956.

- a. Ceiling rose in (in case of ceiling and exhaust fan)
- b. Ceiling rose or connector (in case of pendants except stiff pendant points)
- c. Bank plate (in case of stiff pendant)
- d. Socket outlet (in case of socket outlet points)
- e. Lamps holder (in case of wall Bracket, batten holder bulk head fitting and similar other fittings)
- f. Call bell / buzzer (in case words 'via' the switch shall be read 'via' the ceiling rose / socket outlet for bell push, where no ceiling rose / socket outlet its provided.

The following shall be deemed to be included in the point wiring a.

Switch and ceiling rose are required

- b. In case of wall brackets, bulk head fittings, cables as required up to the lamp holders]
- c. Bushed conduit for porcelain tubing where cables pass through walls.
- d. All wood or metal blocks, boards and boxes, R.J. Boxes sunks or surface type including those required for fan regulator but excluding those under the distribution board and main control switch.
- e. Earth wire from 3 pin socket point to the common earth including connection to the earth dolley.
- f. Earth wire of 16SWG/14 SWG/G.I./Copper wire for loop earthing of the fixture
- g. All fixing accessories such as clips, nails, screw, plug, rawl plug, wooden plug, round blocks etc. as required
- h. Joint for junction boxes and connecting the same as required
- i. Connections to ceiling rose or connection socket outlet, lamp holders, switch, fan regulators etc

The point wiring in case of fan and light points shall mean the distance between the control switch and ceiling rose, connect or back plate, socket outlet or lamp holder depending upon the fittings measured along the runs of wiring irrespective of the number of wires in run. In the case of socket outlet points, the length shall mean the distance between the socket outlet and the tapping point of live wire on the nearest switchboard or junction box, as the case may be.

In the case of exclusive socket outlet circuits wired on 'Joint Box' system of wiring, any junction provided for extending the wiring beyond the point referred to, shall be treated as the nearest tapping point. In case of call bell / buzzer points the length shall mean the distance between the call bell and the ceiling rose / socket outlet or the bell push (when the ceiling rose / socket outlet is not used).

Sub main shall include the earth wire of adequate size main distribution Board up to sub distribution board B.B. such wiring has been classified on the basis of length. For the internal lighting, either surface conduct wiring system or recessed conduit or batten wiring system shall be provided as specific in the bill of quantities and working drawings.

Conduit wiring

For recessed conduit wiring system the conduit shall be placed in the ceiling / columns etc. before the casting of the slab or column. The conduit pipes shall be properly positioned and fixed so that it will not be displaced at the time of concreting. The junction boxes provided shall be so arranged that its cover will be flushed with the finished surface of the ceiling or column.

For placing the conduits in the walls, chases of ample dimension shall be made neatly to fix the conduit in a desired manner. The conduit pipe shall be fixed by means of staple or saddles not more than 600mm apart. Fixing of standard bends or elbows shall be avoided and all curves maintained by bending the conduit itself with a long radius will permit easy drawing of the conductors. Suitable inspection boxes shall be provided to permit periodical inspection and removal or replacement of wires if necessary. There shall be mounted flush with the wall with holes in the cover of the box.

The switch or regulator box shall be made of metal on all sides except on the front where backlight sheet or Perspex cover painted to match the colours of the wall shall be used in case of surface wiring system. For recessed wiring system, these boxes shall be made flush with the conduit of each conduit or section shall be completed before conductors are drawn in. The entire system of conduit after installation shall be tested for mechanical strength and electrical continuity throughout the earthing of the entire installation shall be carried out in accordance with I.E. Rules and standards. The number of wires drawn in the conduits shall not exceed the numbers those specified in Indian standard specification No. 732.

Main and Sub distribution Boards:

The position of main boards for lighting and sub distribution board for different buildings are approximate and the exact location shall be given to the successful tenderer at the time of installation. The scope of this specification includes installation of the panel boards and distribution

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boards and making necessary connections. The installation of the boards shall be done strictly in accordance with the details supplied with the specifications; the instructions supplied by the switchgear manufacturer, Indian standard specifications and H.E. rules. The supplier shall submit the details of installations to the purchaser for his consideration and approval, prior to installation.

When the switchboards are wall / column mounted top, they shall, be mounted on a suitable angle iron framework. All the metal supports etc. shall be protected against corrosion. The mounting height for such switchboards shall be such that it can be conveniently operated.

Earthing

Earthing shall generally be carried out in accordance with the requirements of Indian Electricity Rules and the relevant rules and regulations of electrical supply authorities. The complete earthing work for the installation covered by this specifications shall also be provided taking into account Indian Standard Specification No.IS:732 and IS: 3043. The earthing system adopted shall also have adequate mechanical strength.

The work shall include earthing of noncurrent carrying metallic parts of all the equipment, light fittings, conduit pipes, cable and cable supports and earth strips (the design to be approved by the purchaser) and all the inter connection between the earthing system to a value mutually agreed upon\ between the purchasers and the supplier.

Installation, testing and commissioning:

The supplier shall be responsible for the installation testing the commissioning of all the equipment and materials supplied by him against this specification. This shall also include the provision of miscellaneous wiring and supports and earthing in compliance with Indian Electricity rules and to the full satisfaction of the Government Electrical Inspector. All small items such as clamps, bolts, nuts, racks, supports, miscellaneous wiring etc. required to make the installation complete, shall constitute the part of major items specified in the bill of quantities and the tenderer should quote for each item taking these into consideration.

The responsibility of the supplier shall include receiving all the equipment and materials at site, storage for required period, handling the same at the site of erection, final execution, erections, revisions of equipment, if any, testing and commissioning and handing over the installation complete in all respect to the entire satisfaction of the purchaser's authorized representative. The supplier shall make good of all the damaged equipment and materials during this period at his own expense. The supplier shall submit sample of each and every equipment and materials for the final approval of the purchaser's representatives immediately after the acceptance of offer. All the equipments and materials shall be supplied exactly as per to the approved samples. If at any stage the purchaser brings to the notice of the supplier any discrepancy or defect the supplier shall replace the same at his own expense.

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The supplier shall render all reasonable assistance to the purchaser in getting the installation approved by the Government Electrical Inspector prior to the energisation and supply necessary drawings, test certificates and both for tests carried out at the factory and site as well as the tests which the inspector may demand. In case any addition of alternations are required, to be made in the installation or in the equipment as per the directive of the Government Electrical Inspector / Local Authorities, he same will have to be carried out by the supplier , at his own expense.

The position of light fittings, main board, switches, sockets and routes of pipes and cables shown in the drawings are only indicative. The actual position of these shall be decided at site at the time of execution joints by the supplier and the purchaser's authorized representative. The position of light fittings, pipes and board if required, to be changed / shifted due to the change in the building design etc by the purchaser's authorized representative, the same shall be carried out at no extra cost.

All the materials supplied to the contractor according to the Contract condition will be subject to inspection and approval of the officer or his representative from time to time. The contractor will provide all facilities of such inspections free of cost. At the time of inspection, the owner of his representative will have full liberty to reject any such materials, which does not conform to the specification / requirement. No claim for any rejected materials will be entertained by the owner. The contractor will remove all rejected materials from site at his own cost. No surplus materials procured by the contractor will be accepted by the owner. The contractor will be responsible to get the Electric installations cleared by the Electrical Inspector of Odisha Government. Only the inspection fee will be reimbursed by Department on production of challan copy.

Installation and Maintenance Tools

The supplier along with the tender shall furnish a complete list of tools, appliances and accessories required for the installations of switch grass, light fittings, pipes cables and wires.

Drawings

All drawings, test certificates, instructions manuals etc. shall be in English Language and all dimensions and weights shall be in metric units.

The tenderer shall submit with the tender general arrangement drawings for the installations work, typical methods and cabling and cables supports pipe work and pipe supports, typical methods of earthing and fixing of light fittings earthing etc. as offered by him in the tender.

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The contractor shall submit for the purchaser's approval all layout, the general arrangement drawings as well as the typical details of all types of installation work in three sets before commencing the manufacture and the site installations work well in advance so that the site work shall not suffer.

After obtaining approval of the above drawings the contractor shall supply three sets of the following drawings:

- a. The arrangement and support of conduit pipe
- b. The position of light fittings, switches / plug socket and switch boards
- c. Earthing installations
- d. Layout plan showing the entire cable network

On completion of work, the successful tenderer shall supply one set of tracing in transparent linen and five sets of prints of all drawings incorporating all the changes / modifications affected during the execution of the contract. All wiring diagrams shall indicate clearly, the switch board, the runs of main and sub main wiring and the position of all the points with their controls. All the circuits shall be clearly indicated and numbered in accordance with IS:375. The technical literatures and operating instructions and the maintenance manuals shall also be supplied in triplicate to the purchasers after the completion of the installations work.

Test:

Manufactures standard tests in accordance with Indian Standard and other standards, adopted shall be carried out on all the equipment and accessories covered by this specification so as to ensure efficient and satisfactory performances of all the components and also the equipment as a whole under working conditions at site. The tenderer shall submit a complete list of all such tests. If the purchaser, if so desired for special tests, to be carried out, under certain conditions the same shall be made by the successful tenderer at his own expenses. All equipment shall be tested at site before the commissioning in accordance with the adopted standard and Indian Electricity Rules. Voltage test shall be carried out on each circuit on completion of wiring and cabling.

Technical Data:

The tenderers shall submit with their tender all such technical data, which are required for complete evaluation of the equipment offered. The suppliers shall give complete technical information of the equipment as detailed in Annexure and relevant Indian standards. The tenderer should supply such details of all equipment and materials offered specially with regard to the following.

- a. Fuse switch board and distribution boards

Light fittings

- c. Conduits and the accessories for them

Switches / plug sockets

- e. Cable and wires

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The tender shall give along with his tender the following details:

a. Complete details of earthing electrodes, earthing station and earthing conductors b.

Details of conduit supports

c. Details of all the equipment and accessories to be supplied

Exception to Specifications:

The object of this specification is to have all tenderers quote for equivalent materials and workmanship. It is, however, understood that certain manufacturers may not be able to offer as specified in every case, where the tenderer may find it necessary to deviate from the exact letter and not the intent of the specification, he must specifically state what these deviations may be at the time he submits the tender. All deviations must be grouped in one statement. No deviations other than those included in the tender will be permitted.

PVC insulated Cables and Wires:

For 415V Distribution system, cables of voltage grade not less than 1000V shall be used. These cables shall be heavy-duty class, PVC insulated and PVC sheathed with aluminium/ copper conductors. The wires used in the lighting installation shall be PVC insulated and PVC sheathed copper / aluminium wire in case of conduits wiring and of 660V grade. Wires of different colours shall be made use of for quick identification of phase wire / neutral wire etc. All cable of wires shall comply with the requirements regarding the manufacture and testing etc as specified in India Standard Specification IS: 1554 and IS:694.

The length of cables indicated in the bill of quantities and drawings are only indicative and the Successful tenderer will be paid for the exact length of cables laid at site. No joint shall be allowed in a run of cables, which can be covered by a possible drum length of cables.

Fuse switch / switch fuse shall be metal clad dust and vermin proof suitable for use under climatic conditions prevailing at site. Switch fuse / fuse switch units shall comply in general to IS:1567/4064 with regard to design and constructional / features.

The 'ON' and 'OFF' position of the switch handles shall be distinctly indicated and interlocks shall be provided to ensure that the switch cover cannot be opened unless the switch is in the 'OFF' position. Means shall, however, be provided for releasing the interlock to permit closing of switch with cover open for testing purposes. Designs with normal conventional position of switch handles, i.e. with switch handle up in the 'ON' position and down in the 'OFF' position shall be preferred. All live parts inside the switch shall be properly surrounded and inter phase barrier shall be provided.

Switch fuse / fuse switch units, distribution boards shall be provided with necessary metal frame work so that they can be mounted on wall / columns structure etc. as desired. The panel boards, shall be wall mounted type or floor mounted type as specified in the bill of quantities or drawings. Necessary supporting metal frame of approved design shall be provided for all panel boards.

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The arrangements of work boards shall be such that the operational handle of the top mounted switches are within the convenient of operators (about 1.2 M from the finished floor level) and proper space shall be provided for the termination of the cable in the switches provided below the bus-bars. The bus-bars within the bus-bar chamber shall be liberally spaced for taking the riser connection. The bus bars with aluminium conductors shall be provided and PVC sleeves of different colour shall be mounted on them for easy identification, Clamped joints for taking the riser connections, instead of bolted type shall be preferred.

Two bolted type earthing terminals shall be provided on the switch boards. All individual switches shall be connected with suitable size earth wire to the main earthing terminals of the switchboard. Hanger Board and shock treatment / charts shall be supplied wherever required. At the incoming side of each pen phase, 3-neon type indicating lamps should be provided at the main board.

Switches and Plug Sockets

Switches provided for control of light points shall conform to IS:1087 and shall be rated for 5A/15A 250V

Ceiling Fans and Exhaust Fans:

Ceiling fans shall conform to Indian standard specification IS: 374-1960. The fans shall be supplied with all standard accessories like regulator and capacitors etc.

The performances rating of the propeller fans shall in accordance with stipulations of IS:2312. All fans shall be robust in design and construction and shall be supplied complete with wall brackets / clamps etc.

Fluorescent Fittings:

All fluorescent fittings supplied shall confirm in general to IS:1913 and shall be complete with all standard accessories like choke, starter and capacitor etc. The type of enclosure provided for the fittings shall be of that specified in the bill of quantities and the working drawings. The materials of construction for fittings used for outdoor installations and for use in the work anodes shall be such that they shall withstand the atmospheric condition in that area. Lamp holders used shall be fully shock proof, spring-loaded rotary type to ensure positive lamp locking. It should also be not possible to touch live parts of the lamp holder both after the lamp has been taken out and during the insertion or removal of the lamp. The starters shall be designed to give designed starting characteristics that shall promote full lamp life. Starter shall have high mechanical strength and topic proof construction. It should be incorporated with radio suppression capacitor o adequate rating and\ capacity. Power factor improvement capacitors are provided with hermetically sealed housing to ensure long and trouble free service. Terminal soldering tango shall be provided for easy electrical connections. The capacitors in

general shall conform to IS:1569-1963 and P.F improvement up to 0.95 for twin fluorescent light fittings and 0.9 for single fluorescent light fittings is to be maintained.

The ballast provided in the fluorescent fittings shall generally be in accordance to IS:1534. The ballast should incorporate the following design features.

- a. Low working temperature
- b. Correct pre heating current for the electrodes
- c. Proper wave foam
- d. Small in dimensions
- e. Correct power supply to the lamp
- f. No hum.
- g. Easy connection leads.

Bidder(s) is/are required to submit the information in the following Schedules

SCHEDULE – A

CERTIFICATE OF NO RELATIONSHIP

I/We hereby certify that I/We* am/are* related / not related (*) to any officer of the rank of Assistant Engineer & above and any officer of the rank of Assistant / Under Secretary and above of the F& A.R.D. Department, Govt. of Orissa I/We* am/are* aware that, if the facts subsequently proved to be false, my/our* contract will be rescinded with forfeiture of E.M.D and security deposit and

I/We* shall be liable to make good the loss or damage resulting from such cancellation. (*) -

Strike out which is not applicable

Signature of the Bidder

Date: -

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SCHEDULE – B

**WORKING EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS IN PROGRESS**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement No.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.....

SCHEDULE – C

**WORK EXPERIENCE
LIST OF SIMILAR NATURE OF PROJECTS EXECUTED**

Name of Employer	Name of location and name of work	Contract price in Indian Rupees/ Agreement no.	Major Items of works	Date of starting the work as per Agreement	Stipulated date of completion of the work as per Agreement	Revised target date of completion of the work, if any	Reasons for slow progress, if any, with the updated billing amount
1	2	3	4	5	6	7	8

Note: The above information is to be certified by the Engineer in Charge / Employer not below the rank of Executive Engineer.

Signature of the Bidder
Date.

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SCHEDULE – D**INFORMATION REGARDING CURRENT LITIGATION, DEBARRING EXPELLING OF BIDDER OR ABANDONMENT OF WORK BY THE BIDDER**

- | | | | |
|----|----|--|----------------|
| 1. | a) | Is the bidder currently involved litigation relating to the works. | Yes /No in any |
| | b) | If yes: give details: | |
| 2. | | Has the bidder or any of its constituent partners been debarred/ expelled by any agency in India during the last 5 years. | Yes /No |
| 3. | a) | Has the bidder or any of its constituent partners failed to perform on any contract work in India during the last 5 years. | Yes /No |
| | b) | If yes, give details: | |

Note: If any information in this schedule is found to be incorrect or concealed, qualification application will summarily be rejected.

Signature of the Bidder

Date.

CONTRACTOR

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SCHEDULE – E**AFFIDAVIT**

1. The undersigned do hereby certify that all the statements made in the required attachments are true and correct.
2. The undersigned also hereby certifies that neither my / our firm / company / individuals _____ nor any _____ of its constituent partners have abandoned any road/ bridge/Irrigation /Buildings or other project work in India nor any contract awarded to us for such works have been rescinded during the last five years prior to the date of this bid.
3. The undersigned hereby authorise(s) and request(s) any bank, person, firm or Corporation to furnish pertinent information as deemed necessary and as requested by the Department to verify this statement or regarding my (our) competency and general reputation.
4. The undersigned understands and agrees that further qualifying information may be requested and agree to furnish any such information at the request of the Department.

(Signature of Bidder)

Name of Firm

Date:

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**RELATIONSHIP
DECLARATION**

To,

The Tender Inviting Officer,

Subject: (Name of the Work)

Reference: (Bid reference number) Sir,

Pursuant to clause 2 of the ITB, it is to inform that I have relative(s) employed as an Officer in the rank of an Assistant Engineer/Under Secretary under the _____ Department. His (Their) details are as follows.

Relationship:

Name:

Designation

Office

Address

Pursuant to clause 2 of the ITB, I am to submit herewith the names of persons who are working under my firm having near relatives to any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the Department.

SI No	Name of the my employee and his designation in the firm	Presently working at	Details of his relatives working in the Department
			Relationship Name: Designation Office Address
			Relationship Name: Designation Office Address

I am also duty bound to inform the relationship of any subsequent employment with any gazetted officer in the rank of an Assistant Engineer/Under Secretary in the _____ Department. I am aware that any breach of this condition would render my firm liable for penal action for suppression of facts.

Yours Sincerely

Signature of the Bidder.

Date:-

CONTRACTOR**TENDER OPENING OFFICER**

**PRICE
BID**

BILL OF

QUANTITY FOR

THE WORK

**“DEVELOPMENT OF SONEPUR FISH FARM IN
SUBARNAPUR DISTRICT”**

ESTIMATED COST PUT TO TENDER : **Rs. 17,68,440.00**

**OFFICE OF THE EXECUTIVE ENGINEER
[CIVIL] DIRECTORATE OF FISHERIES,
ODISHA CUTTACK**

\

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BILL OF QUANTITY

NAME OF WORK:- DEVELOPMENT OF SONEPUR FISH FARM SUBARNAPUR DISTRICT					
SL NO.	ITEM OF WORK	QTY.	UNIT	ESTIMATED	
				RATE	AMOUNT
1	Providing Single under reamed pile foundation of size 300 mm dia 6 Mtr. long with R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg/Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting, lowering and laying concrete and including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as per direction of Engineer-in-charge (excluding cost and conveyance of M.S. rods or Tor steel and binding wires of 18 to 20 gauge and labour charges for strengthening, cutting, bending grills and placing in proper position.)	24.00	Nos.	□ 4,587.00	□ 1,10,088.00
2	Earthwork in all kind of soil in embankments, roads etc. within 50 m initial lead and 1.5m initial lift including rough dressing and breaking clods to maximum 5cm. to 7cm. and laying in layers not exceeding 0.3cm. in depth and as per specification approved by the Department including cost, conveyance, royalty, taxes of all materials, labour, labour cess, T&P etc. required for the work etc. complete as per the direction of the Engineer-in-charge. I. Over Head Tank- 28.19 Cum. II. Water Supply System- 73.44 Cum. Total. 101.63 Cum.	101.63	Cum.	□ 196.70	□ 19,990.62
3	Supplying, filling in foundation and plinth with good quality of filling sand including watering and ramming, poking & compacting including cost, conveyance, royalties, taxes of the materials, cost of all labour, labour cess, T&P etc. required for the work etc. complete as directed by the Engineer-in-Charge. I. Over Head Tank- 19.69 Cum. II. Water Supply System- 16.20 Cum. Total. 35.89 Cum.	35.89	Cum.	□ 327.60	□ 11,757.56

4	<p>Providing and laying Plain Cement Concrete of proportion (1:3:6) in foundation and floors using 4 cm size black hard crusher broken granite stone metal and screened washed sharp sand for mortar of approved quality and from approved quarry including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each layer including cost, conveyance, royalties, taxes of all materials and cost of all labours, labour cess, T&P etc required for the work including shoring, shuttering and dewatering if required including hire & running charges of all machineries required for the work etc. complete as directed by the Engineer-in-charge.</p> <p>I. Over Head Tank- 7.21 Cum. II. Water Supply System- 11.66 Cum. Total. 18.87 Cum.</p>	18.87	Cum.	□ 4,244.70	□ 80,097.48
5	<p>R.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge.</p>				
5.1	<p>Base of Column I. Over Head Tank- 17.52 Cum. Total. 17.52 Cum.</p>	17.52	Cum.	□ 4,603.50	□ 80,653.32
5.2	<p>RCC Column I. Over Head Tank- 3.93 Cum. Total. 3.93 Cum.</p>	3.93	Cum.	□ 11,618.20	□ 45,659.52
5.3	<p>RCC Column (First Floor) I. Over Head Tank- 2.40 Cum. Total. 2.40 Cum.</p>	2.40	Cum.	□ 13,131.90	□ 31,516.56
5.4	<p>RCC Column (Second Floor) I. Over Head Tank- 1.48 Cum. Total. 1.48 Cum.</p>	1.48	Cum.	□ 14,601.00	□ 21,609.48
5.5	<p>RCC Grade Beam I. Over Head Tank- 1.09 Cum. Total. 1.09 Cum.</p>	1.09	Cum.	□ 4,953.60	□ 5,399.42
5.6	<p>RCC Lintel I. Over Head Tank- 0.71 Cum. Total. 0.71 Cum.</p>	0.71	Cum.	□ 8,077.90	□ 5,735.30

5.7	RCC Beam (Ground Floor) I. Over Head Tank- 2.07 Cum. Total. 2.07 Cum.	2.07	Cum.	□ 10,185.20	□ 21,083.36
5.8	RCC Beam (First Floor) I. Over Head Tank- 1.71 Cum. Total. 1.71 Cum.	1.71	Cum.	□ 11,412.30	□ 19,515.03
5.9	RCC Slab (Ground Floor) I. Over Head Tank- 3.88 Cum. Total. 3.88 Cum.	3.88	Cum.	□ 8,672.00	□ 33,647.36
5.10	RCC Slab (First Floor) I. Over Head Tank- 6.90 Cum. Total. 6.90 Cum.	6.90	Cum.	□ 9,596.50	□ 66,215.85
5.11	RCC Slab (Second Floor) I. Over Head Tank- 2.10 Cum. Total. 2.10 Cum.	2.10	Cum.	□ 10,589.00	□ 22,236.90
5.12	RCC Wall (Second Floor) I. Over Head tank- 5.70 Cum. Total. 5.70 Cum.	5.70	Cum.	□ 12,307.60	□ 70,153.32
5.13	RCC Staircase (Ground Floor) I. Over Head Tank- 1.09 Cum. Total. 1.09 Cum.	1.09	Cum.	□ 9,698.70	□ 10,571.58
5.14	RCC Staircase (First Floor) I. Over Head Tank- 1.09 Cum. Total. 1.09 Cum.	1.09	Cum.	□ 10,828.40	□ 11,802.95
6	Straightening cutting, bending bent up or coiled rods, including cranking, hooking, welding or jointing the M.S. rods or Tor steel conforming to I.S. 432 (Plain) and 1785 (Tor) steel and binding, tying the grills, hoisting, lowering and placing in proper position required for R.C.C. works including cost, conveyance and taxes of M.S. rods or Tor steel and binding wires of 18 to 20 gauge conforming to I.S. 280 (galvanized minimum 1 mm) and cost of all labour, labour cess, all T&P required for the work etc. complete as directed by the Engineer- in-Charge- Ground Floor. I. Over Head Tank- 31.24 Qtl. Total. 31.24 Qtl.	31.24	Qtl.	□ 5,727.20	□ 1,78,917.72
6.1	First Floor. I. Over Head Tank- 13.91 Qtl. Total. 13.91 Qtl.	13.91	Qtl.	□ 5,750.10	□ 79,983.89
6.2	Second Floor. I. Over Head Tank- 10.67 Qtl. Total. 10.67 Qtl.	10.67	Qtl.	□ 5,774.10	□ 61,609.64

7	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance \pm 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Foundation & Plinth) . I. Over Head Tank- 2.42 Cum. II. Water Supply System- 80.39 Cum. Total. 82.81 Cum.	82.81	Cum.	□ 3,852.30	□ 3,19,008.96
8	Brick work with Fly ash bricks of 25 Cm. x 12 Cm. x 8 Cm. size having crushing strength not less than 75 Kg./Cm ² with dimensional tolerance \pm 2 percent in cement mortar (1:4) etc. complete including cost, conveyance, royalties, taxes of all materials, cost of all labour, labour cess, all T&P etc. required for the work complete in all respect as directed by the Engineer-in-charge (Super Structure)- Ground Floor . I. Over Head Tank- 7.40 Cum. Total. 7.40 Cum.	7.40	Cum.	□ 3,885.60	□ 28,753.44
8.1	First Floor. I. Over Head Tank- 4.75 Cum. Total. 4.75 Cum.	4.75	Cum.	□ 4,098.50	□ 19,467.87
9	Providing 16 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge Ground Floor I.Over Head Tank- 49.12 Sqm. Total. 49.12 Sqm.	49.12	Sqm	□ 188.80	□ 9,273.85
9.1	First Floor I.Over Head Tank- 19.00 Sqm. Total. 19.00 Sqm.	19.00	Sqm.	□ 193.50	□ 3,676.50

10	Providing 12 mm thick cement plaster over brick work with cement mortar of mix (1:6) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge Ground Floor I. Over Head Tank- 49.12 Sqm. Total. 49.12 Sqm.	49.12	Sqm	□ 132.10	□ 6,488.75
10.1	First Floor I.Over Head Tank- 26.25 Sqm. Total. 26.25 Sqm.	26.25	Sqm.	□ 135.30	□ 3,551.62
11	Cement Punning with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge I. Over Head Tank- 25.65 Sqm. Total. 25.65 Sqm.	25.65	Sqm	□ 30.60	□ 784.89
12	Providing 6 mm thick cement plaster over brick work with cement mortar of mix (1:4) with screened and washed sharp sand for mortar and finished smooth to the rough surface of walls in all heights after racking out joints including watering and curing, rounding of corners, providing grooves where ever necessary with cost, conveyance, royalties and taxes of all materials with cost of all labour, labour cess, T&P, and scaffolding required for the work etc. complete in all respect as directed by the Engineer in charge- Ground Floor. I. Over Head Tank- 34.08 Sqm. Total. 34.08 Sqm.	34.08	Sqm	□ 148.40	□ 5,057.47
12.1	First Floor. I. Over Head Tank- 71.34 Sqm. Total. 71.34 Sqm.	71.34	Sqm	□ 152.10	□ 10,850.81
12.2	Second Floor. I. Over Head Tank- 63.45 Sqm. Total. 63.45 Sqm.	63.45	Sqm	□ 155.90	□ 9,891.85

13	P.C.C. work of M-20 grade having minimum compressive strength in work test of 200 Kg / Cm ² in 15 cm. cubes at 28 days after mixing and tests conducted in accordance with IS 456 & IS 516 using 12 to 20 mm size black hard crusher broken granite stone chips of approved quality and from approved quarry including hoisting lowering, laying concrete and compacting by using vibrators watering and curing for 4 weeks and finishing the exposed surface smooth providing grooves or beads where ever necessary in all floors including cost, conveyance, royalties and taxes of all materials, cost of all labour, labour cess, T&P required for the work etc. complete in all respect as directed by the Engineer in-charge. Ground Floor I. Over Head Tank- 1.05 Cum. Total. 1.05 Cum.	1.05	Cum.	□ 4,453.40	□ 4,676.07
13.1	Ground Floor I. Over Head Tank- 1.05 Cum. Total. 1.05 Cum.	1.05	Cum.	□ 4,534.20	□ 4,760.91
14	Supplying M.S grills made up of M.S angle iron and flats for windows venti-lators and openings including cost of all and complete finished in all respect.	6.36	Qtl.	□ 7,706.80	□ 49,038.36
15	Supplying, fitting, fixing of stainless steel of 304 grade in hand railing using 50mm dia. Of 2mm thick circular pipe with balustrade of size 32mmx32mmx2mm @ 0.90m c/c and stainless square pipe braceng of size 32mmx32mmx2mm in 3 rows in stair case as per approved design and specification , buffing ,polishing etc. with cost conveyance taxes of all materials , labour , T&P required for completion of the work in all reaspect as per the direction of the Engineer- in - charge.	15.00	Rmt.	□ 3,492.20	□ 52,383.00
16	Finishing walls with water proofing cement paint of two coats to get even shade to match the colour including cost of all and complete with cost of all materials taxes , labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge. Ground Floor	132.32	Sqm.	□ 30.90	□ 4,088.68
16.1	Finishing walls with water proofing cement paint of two coats to get even shade to match the colour including cost of all and complete with cost of all materials taxes , labour T&P etc. complete with cost, conveyance, taxes of all materials, cost of all labour, T&P, labour cess complete as per the direction of the Engineer-in-charge First Floor	154.39	Sqm	□ 31.54	□ 4,869.46

17	Laying (to level or slopes) and jointing with rubber rings pre-cast reinforced socket and spigot concrete pipes Class NP-3 conforming to IS:458 - 2003 suitable for rubber ring roll on joint of the following internal diameter as per specification complete. (Earthwork in trenches to be measured and paid for separately)	144.00	Mtr	□ 814.00	□ 1,17,216.00
18	Supplying all materials,labour and T&P for cutting holes through existing brick work including making good to the same in cement mortar(1:4) for taking G.I. pipes and fittings /P.V.C. pipes and fittings all complete as per specification.				
	250 MM thick wall	3.00	Each	□ 43.10	□ 129.30
19	Providing and fixing to wall or ceiling and floor rigid PVC pipes conforming to ASTM-D-1785/89[Sch-80] and pipe fittings of the following nominal bore with clamps including making good the wall , ceiling and floor all complete as per specification.				
19.1	15 MM Diameter	15.00	Mtr	□ 96.00	□ 1,440.00
19.2	20 MM Diameter	22.00	Mtr	□ 115.80	□ 2,547.60
19.3	25 MM Diameter	12.00	Mtr	□ 146.60	□ 1,759.20
19.4	50 MM Diameter	23.00	Mtr	□ 190.00	□ 4,370.00
20	Supplying all materials,labour and T&P for cutting groves in pucca floor and walls for taking G.I. pipes and fittings /P.V.C. pipes and fittings and making good to the amages all complete as per specification.	12.00	Mtr	□ 169.50	□ 2,034.00
21	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes.				
	110 MM Diameter	16.00	Mtr	□ 294.40	□ 4,710.40
22	Supplying all labour and T&P for fixing Brass /Gunmetal Ball volve [horizontal plungr type] confirming to IS:1703-1977 of the following nominal sizes as per specification all complete.				
22.1	32 MM Ø brass ball valve	5.00	Each	□ 1,546.60	□ 7,733.00
22.2	50 MM Ø brass ball valve	3.00	Each	□ 2,927.30	□ 8,781.90
23	Supplying all materials,labour and T&P for cutting holes in R.C.C. floors, roofs,or cornice including making good and leak proof to the damages for taking sand cast iron [SCI] / centrifugally cast[spun] iron pipes . pipes and fittings including mending good to the damages etc. all complete as per direction of the Engineer-in-charge.				
	RCC Roof/Cornice	6.00	Each	□ 149.70	□ 898.20
24	Providing and fixing on wall face unplasticised rigid PVC soil waste and rain water pipes confirming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion [i] Single socket pipes.				
	110 mm diaUPVC single socket pipe[working pressure4kg/cm ²]	15.00	Mtr	□ 294.40	□ 4,416.00

25	Supplying all labour and T&P for fixing Brass /Gunmetal Ball valve confirming to IS:781-1995 of the following nominal sizes as per specification all complete.				
	100 MM dia Full Way Valve	2.00	Nos.	□ 11,100.00	□ 22,200.00
26	Supplying all materials,labour and T&P for Supplying all materials,labour and T&P for fixing wash down water closet (European type W.C.) with integral "S" or "P" trap to the floor with wooden plug and chromium plated screw including jointing the trap with soil pipe in cement mortar (1:1) etc. all complete as per specification.				
	E.W.C with "P" Trap	1.00	Each	□ 2,330.60	□ 2,330.60
27	Supplying all materials,labour and T&P for fixing plastic seat and cover for wash down water closet with chromium plated brass hinges and rubber buffers all complete as per specification.				
	Plastic Seat Cover	1.00	Each	□ 611.60	□ 611.60
28	Supplying all materials,labour and T&P for fixing of PVC 10.00 ltr capacity low level flushing cistern with manually controlled device[handle cover] confirming to IS 7231 with fittings and fixtures etc. all complete as per specification.				
	10 ltrs capacity low level cistern.	1.00	Each	□ 1,484.70	□ 1,484.70
29	Supplying all materials,labour and T&P for fixing wash hand basin with hole for pillar taps confirming to IS 2556:part4-2004 with cast iron /M.S. brackets painted white including cutting holes in walls and making good to the damages etc. all complete as per specification.				
	Wash hand basin 550x400mm	2.00	Each	□ 2,489.30	□ 4,978.60
30	Supplying all labour and T&P for fixing CP Angular stop cocks polished bright confirming to IS:781-1995 of the following nominal sizes as per specification all complete.				
	15mm dia CP angular stop cock	3.00	Each	□ 712.40	□ 2,137.20
31	Supplying all labour and T&P for fixing CP Concealed stop cocks polished bright confirming to IS:781-1995 of the following nominal sizes as per specification all complete.				
	15mm dia CP concealed stop cock	1.00	Each	□ 855.30	□ 855.30
32	Supplying all labour and T&P for fixing long body bib cock of the following size as per specification all complete (including cost of cock)				
	15mm dia long body Bib cock	2.00	Each	□ 754.40	□ 1,508.80
33	Supplying all labour and T&P for fixing CP short body Bib cock [taps] polished bright confirming to IS:781-1995 of the following nominal sizes as per specification all complete .				
	15mm dia short body Bib cock	2.00	Each	□ 697.60	□ 1,395.20
34	Supplying fitting fixing of chromium plated CP over head shower rose with arm including polishing and complete as per specification.				

	CP Over Head Shower	1.00	Each	□ 561.10	□ 561.10
35	Supplying all materials,labour and T&P for fixing of [A] liquid soap container - glass container or plastic container with chromium plated brass lid and brackets fixed to wooden plugs with chromium plated brass screws [B] chromium plated brass soap dish complete with chromium plated brass brackets fixed to wooden plugs with chromium plated brass screws [C] white glazed tooth brush holder fixed to wooden plugs with chromium plated brass screws as per specification				
	Soap Holder	1.00	Each	□ 268.90	□ 268.90
36	Supplying all labour and T&P for fixing 2 in 1 bib cock of the following size as per specification all complete (including cost of cock)				
	2 in 1 bib cock	1.00	Each	□ 998.50	□ 998.50
37	Supplying fitting fixing of C.P health faucet highpressure lettered Hot and cold with long screws shanks and back nuts of the following nominal bore as per specification.				
	15mm dia CP health faucet with 1.0M PVC tube	1.00	Each	□ 542.90	□ 542.90
38	Supplying fitting fixing of C.P Pillar Taps highpressure lettered Hot and cold with long screws shanks and back nuts of the following nominal bore as per specification.				
	15mm dia CP Pillar cock	2.00	Each	□ 694.30	□ 1,388.60
39	Supplying all materials,labour and T&P for fixing CP Gratings of the following nominal diameter of outlet, of self cleaning design with sand cast iron screwed down or hinged grating with or without vent arm including cutting and making good to the walls and floors etc. all complete as per specification.				
	C.P Gratings	3.00	Each	□ 475.40	□ 1,426.20
40	Supplying all materials,labour and T&P for fixing of 600x450 bevelled edge mirror of superior glass mounted on 6mm thick ac sheet or ply wood sheet and fixed to wooden plugs with chromium plated brass screws and washers etc. All complete as per specification .				
	Bevelled edge mirror (600x450mm.) :-	2.00	Each	□ 699.90	□ 1,399.80
41	Supplying all materials,labour and T&P for fixing standard size C. P. towel rail fixed with chromium plated brass brackets fixed to wooden plugs with chromium plated brass screws complete as per specification.				
	Towel rail 600 x 200mm	2.00	Each	□ 820.20	□ 1,640.40
42	Supplying all materials,labour and T&P for fixing standard size C. P. towel ring fixed fixed to wooden plugs with chromium plated brass screws complete as per specification.				
	Chromium Plated Towel ring	2.00	Each	□ 427.20	□ 854.40

42	Supplying all materials,labour and T&P for fixing standard size glass self with chromium plated brass brackets and guard rails fixed to wooden plugs with chromium plated brass screws and washers etc. all complete as per specification.				
	Glass self	2.00	Each	₹ 592.70	₹ 1,185.40
43	Supplyingfitting fixing of PVC waste pipe of following nominal diameter of wash basin or sink including brass check nut complete as per specification.				
	32mm dia Waste Pipe	2.00	Each	₹ 84.30	₹ 168.60
44	Supplying fitting fixing of 15mm dia PVC inlet connection pipe and making connection with pillar cock and supply mains for wash basin complete as per specification.				
	15mm dia 15mm x 300mm	2.00	Each	₹ 72.30	₹ 144.60
45	Supplying fitting fixing of CP waste of the following noninal diameter for wash hand basin and sink as per specification.				
	32mm CP waste	2.00	Each	₹ 210.90	₹ 421.80
46	Supplying all materials,labour and T&P for fixing of 100mm size'P' or 'S' trap [with horn or without horn]for water closet sqatting pan including jointing the trap with pan in cement mortar 1:1 etc. all complete as per specification and direction of the Engineer-in-charge.				
	110mm dia P -Trap	3.00	Each	₹ 320.10	₹ 960.30
47	Providing and fixing on wall face unplastised rigid PVC moulded fittings / accessories for unplastidsied rigid PVC rain water pipes conforming to IS : 13592 Type A including jointing with seal ring confirming to IS:5382 leaving 10mm gape for thermal expansion.				
47.1	Single tee with door 110 mm diameter	2.00	Each	₹ 268.30	₹ 536.60
47.2	Plain Bend 87.5° 110mm diameter	5.00	Each	₹ 139.10	₹ 695.50
47.3	PVC Pipe Clip 110mm diameter	33.00	Each	₹ 68.90	₹ 2,273.70
47.4	PVC Vent Cowl 110mm diameter	2.00	Each	₹ 77.30	₹ 154.60
48	Recessed wiring to light point/Fan point/ Exhaust fan point/Call bell point with 1.5sq.mm FR PVC insulated single core multistrand copper conductor of ISI marked with 20mm dia non-metallic PVC flexible conduit with 5A ,25 on MS box having front bakelite cover of suitable size, MS box with 1.5sq.mm FR PVC insulated single core multistrand copper conductor as earth wire including all accessories and connection (Make of wire-Finolex/L&T/Anchor/Havells/V-Guard/Great White/HPL)				
48.1	Group-A L-P-2 F.P- C.B.P-	2.00	Point	₹ 363.39	₹ 726.78
48.2	Group-B L.P- F.P.2 C.B.P-	2.00	Point	₹ 513.39	₹ 1,026.78
48.3	Group-C L.P- 4 F.P- C.B.P-	4.00	Point	₹ 693.75	₹ 2,775.00

49	Recessed extra lead submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire -Finolex/ L&T/ Anchor/Havells/V-Guard /Great White/HPL) exceeding to Group-C points in 2 X 1.5sqmm +1 x 1.5sqmm	45.00	Mtr	□ 97.32	□ 4,379.40
50	Recessed wiring to 5A /6Amp socket outlet with 2 X 1.5sq.mm FR PVC insulated single core multistrand copper conductor of ISI marked in recess 20mm dia non metallic PVC flexible conduit with piano type switch, Phenolic laminated sheet suitable size ISI marked MS box and earthing point with 1 X 1.5sq.mm FR PVC insulated single core multistrand copper conductor for loop earthing etc. as required (Make of wire -Finolex/ L&T/ Anchor/ Havells/V-Guard/Great White/HPL)				
	Separate	1.00	Each	□ 371.42	□ 371.42
	Supply and fixing of 5Amp plug with switch on existing board (Piano type)	1.00	Each	□ 66.96	□ 66.96
51	Recessed submain wiring alongwith earth wire with the following sizes of PVC insulated single core multistrand copper conductor ISI marked conforming to IS-694/1990 in 20mm dia non metallic heavy duty flexible conduit 1.6 mm in recessed PVC conduit as required (make of wire - Finolex/L&T/Anchor/Havells/V-Guard/Great White/Mescab/HPL)				
51.1	2 X 2.5sq.mm +1 X 1.5sqmm	40.00	Mtr	□ 112.50	□ 4,500.00
51.2	2 X 4 Sq.mm +1 X 1.5sqmm	15.00	Mtr	□ 132.14	□ 1,982.10
52	S/F of Bakelite angle holder/batten holder of ISI marked conforming to IS-1258/1987 in place of ceiling rose	2.00	Each	□ 8.03	□ 16.06
53	Supply and fixing Earthing with G.I earth pipe 3mtr. Long 40mm dia ISI marked including accessories and providing masonry enclosure with cover plate having locking arrangement and watering pipe etc. with charcoal and salt as required				
	Standard earthing as per Govt. spcn.	1.00	Each	□ 2,106.25	□ 2,106.25
54	Supply and fixing of following way single pole and neutral sheet steel MCB distribution board 250V on surface/recess complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, detachable gland plate, interconnections, phosphatized and powder painted including earthing etc. as required (but with out MCB/ RCCB/ Isolator) make-HPL/ Havells/ Legrand /L&T/C&S.)				
	4 Way Double Door	1.00	Each	□ 1,266.96	□ 1,266.96

55	Supply and fixing of 5Amp to 32A rating 240V "B" series MCB suitable for lighting and other loads of the following poles in the exiting MCB DB ISI marked complete with connections testing and commissioning etc. (make-HPL/Havells/Legrand /L&T/C&S)				
	Single Pole (SP)	2.00	Each	□ 127.67	□ 255.34
56	Supply Fixing of following rating double pole 240V isolator in the existing DB ISI marked complete with connection listing and Commissioning etc as required				
	40 AMP	1.00	Each	□ 283.03	□ 283.03
57	Supply and fixing of porcelain base kit kat (Anchor/Havells)				
	63 AMP Kit Kat	2.00	Each	□ 258.92	□ 517.84
58	Supply ,installation, testing and commissioning of main switches (IS 13940 part-3/1993) of following capacity on existing surface/wall mounting and completer with HRC fuse links, interconnections, earthing (Make-Seimens/HPL/Anchor/L&T/Havells/C&S/RK)				
	32Amp ICDP main switch with M.S board.	1.00	Each	□ 1,038.39	□ 1,038.39
59	Supply and fixing of different type of fitting with lamp				
59.1	1' X 28watt T-5 fitting(Make-Bajaj/Philips/Crompton)	2.00	Each	□ 751.78	□ 1,503.56
59.2	Street light (1 X 24/36watt CFL)with G.I bracket(Make-Bajaj/Philips /Crompton/PAC/HPL	2.00	Each	□ 2,043.75	□ 4,087.50
60	Supply and fixing of fan (make-Usha/Orient /Khaitan/Havells/Crompton/Almonard/				
	Wall mounted fan 16" size	2.00	Each	□ 2,111.60	□ 4,223.20
61	Supply and fixing of 15/20Watt CFL lamp (Philips/Havells/AnchorBajaj)	2.00	Each	□ 178.57	□ 357.14
62	S/F of PVC T/C U.B almn. Wire with No. 10/12SWG				
	G.I Supporting wire				
	6mm 2 Almn. Wire	50.00	Mtr	□ 19.64	□ 982.00

63	S/F of No. 8 G.I wire as earth continuity	45.45	Kg	<input type="checkbox"/> 42.85	<input type="checkbox"/> 1,947.53
				Total.	<input type="checkbox"/> 17,68,440.09
	TOTAL = 63 (SIXTY THREE) ITEMS ONLY			Or Say.	<input type="checkbox"/> 17,68,440.00
(RUPEES SEVENTEEN LAKHS SIXTY EIGHT THOUSAND FOUR HUNDRED FORTY) ONLY					
RATE QUOTED BY THE TENDERER					
		IN FIGURE		IN WORDS	
	PERCENTAGE EXCESS OVER THE ESTIMATED VALUE				
	PERCENTAGE LESS OVER THE ESTIMATED VALUE				
	PERCENTAGE AT PAR THE ESTIMATED VALUE				

CONTRACTOR

APPROVED

Executive Engineer (C)

CONTRACTOR

TENDER OPENING OFFICER