

**GENERAL CONDITIONS FOR WORKS TO BE CARRIED OUT BY CONTRACTOR UNDER
PUBLIC HEALTH WORK DIVISION, JAMNAGAR**

COMMON CONDITIONS:

1. GENERAL:

The specifications attached to this tender are modifications of specifications for the respective items as given in the P.W.D hand book Vol. I & II and these current in the division and all these shall strictly apply.

2. WORKS

(i) All petty items accruing in the work shall be carried out in work manlike manner as per specifications given in P.W.D Hand book Vol.I & II as per General specifications current in the divisions and as per the instructions of the Engineer-in-charge from time to time.

(ii) Extra charges of claims in respect of extra work shall only followed, if the work to which they relates in not covered plans and specifications or if such works are ordered in writing by the Engineer-in-charge and are claimed for in specified manner before the work is taken in hand.

(iii) Any items not covered in the schedule "B" but required to be executed shall be carried to by contractor at the Divisional schedule of Rates

(iv) Any items not covered in the schedule "B" but required to be executed shall be carried out by contractor as laid down in suitable applicable clause of approved tender.

(v) The contractor shall to clear the site of the work before it is commenced and after the work all noted template for which separate claim will not be entertained.

(i) The contractor shall engage an experience and or qualified supervisor as his authorized agent for the work who shall be responsible to take from time to time such orders s may be given by Engineer-in-charge and carry them out properly.

(ii) In addition to the requisite stones, the contractor shall provide at his cost a suitable temporary office shed with a covered area of 20 sq.ft with necessary furniture for the use by Government staff while the work is in progress the shed furniture on completion of the work shall be removed by the contractor.

(iii) The contractor shall provide at his own cost all labour, pate, strings and other mater materials as may be required for lining and setting out the work and satisfactory & adequate facilities like scaffolding etc. or facility of checking his work or taking measurements by the department. The contractor shall have to provide for this purpose skilled and unskilled labour free of cost.

(iv) Government shall give reasonable facilities to the contractor to enable him to obtain controlled materials at controlled rates as may be fixed from time to time. The contractor shall however not be untitled to claim any compensation or extra time limit on account of non supply or delay in obtaining the necessary supply at controlled rates. The materials as obtained shall be only used for the work in question. Any materials remain surplus neither to disposed off not removed by the contractor without obtaining written permission of the department to that effect Government shall have the option to take the delivery of the surplus at the original purchase price. The contractor shall maintain regular.

The contractor shall give receipt of all pipes and materials issued to him even if received free of cost.

(v) FENCING AND WATCHING:

The contractor shall be responsible for fencing off in a good and manner all excavation work under constructions and materials at side so as to prevent accident by night for the portion of any work which is open as under execution. The contractor shall always maintain

(vi) Water required for the execution of the work shall be supplied by the contractor at his own cost in the manner satisfactory the Engineer-in-charge.

(vii) The contractor shall be responsible for any accidents on work or any damage done to the adjoining property which will have to be made good at the contractor's expense.

(5)DECLARATIONS:

The contractor shall make declaration as under: I have made myself thoroughly conversant with the local conditions as regards the availability or other wise of all construction materials, skilled and unskilled labour on which I have based and tendered my rates for this work. The specifications, drawing and design of this work have been carefully studied and are understood by me before the submission of this tender.

GENERAL SPECIFICATION FOR WORK TO BE CARRIED OUT UNDER PUBLIC HEALTH WORK DIVISION, JAMNAGAR

GENERAL SPECIFICATIONS:

1. All items accruing in the work and as found necessary in actual execution shall be carried out in a workman like manner as per details supplied as per specifications given in the Bombay P.W.D. Hand book Vol. I & II (9th Edition) and as General specifications current in the Division and as per instructions of the Executive Engineer or his authorized agent.

1. It must be distinctly and clearly understood that the specifications intended shall be regularly enforced & no relaxation shall be allowed. Extra item for claim in respect of extra work shall not be allowed unless the work to which they relates are clearly without the spirit and meaning of the specifications and unless such works are ordering out in writing by the Executive Engineer, or his representative and claimed for in specified manner before the work is taken in hand.

1. The contractor shall have to clear the site of work before the work is commenced and after its completion for which separate claim shall not be allowed.
2. The contractor shall provide all labour & required materials such as pegs, sight, rails, boning rods, strings and such other materials as required for setting out and checking up layout work without any extra charges to Government Department.
3. The contractor shall have to get permission of authorities concerned to stack and stone materials on work site. In case of materials brought and stored at site without written permission of the Engineer-in-charge the contractor shall be responsible for all legal disputes that may arise out of it and shall have to bear all consequences without reference to Government.
4. The contractor shall remove all materials which are rejected to such a distance that may be ordered within 24 hours after receiving the instruction to do so from the Engineer-in-charge or his authorized representative.

5. ECONOMIC USE OF GOVERNMENT MATERIALS:

The contractor shall make proper and economic use of all materials supplied by the Department whether free of cost or in payment and whether directly to him or through any person for utilization in the execution of the contractor. He shall keep the account of such materials in suitable books which should be available for inspection by Executive Engineer or his authorized representative. The contractor shall be responsible for proper handing and safe custody of all the materials delivered to him by Govt. for use of work and shall return to the Government all surplus materials after completion of work all unused or surplus materials after completion of work. All unused or surplus materials like specials, steel etc once issued to the contractor to the Department of issue or any other Department store as directed in good condition. Also in case of pipes are no more required to be used either due to reasons being in excess or change in alignment or cancellation or remaining length or any other similar reasons, the same be returned to the store without claiming for any extra cost or compensation or carting labour etc required for returning the same, and if any less or shortage are noticed or materials found in damaged or unreliable condition the cost there of shall be recovered at back value or market value by the Engineer-in-charge from the contractor.

Account of the receipt and the use of such materials the satisfaction of the Engineer-in-charge * submit him monthly statement thereof.

6. The contractor at his own expense shall provide necessary housing accommodation water supply and sanitary arrangement for his staff and labour & shall pay direct to the Authorities concerned all Sales Tax, Royalties and other charges. The contractor shall also comply with the requirement of the Health Department as regards ant malarial measures etc sufficient number of workman in duty and shall make his rates sufficiently comprehensive to allow for the duties. The contractor shall be fully responsible for identify Government of any person or persons in case accident by neglect of such precaution of the contractor.

7. CLOSING OF ROADS AND DIVERSIONS OF TRAFFIC

The contractor must provide for barrier's at each end of the trench or portion of the road closed for the work under progress Red flags and the board shall be placed at each barrier by day and red lights at night strong timber plank bridges shall be provided across the trenches at approaches to houses and at all road junctions to accommodate

pedestrian traffic and arrangement provided to guide the traffic without claiming any extra cost.

The contractor shall provide at his own cost drainage diversion and crossing across the trenches on excavation at place considered necessary by the Executive Engineer or his authorized representative.

8. SUPPLY OF CEMENT & WATER FOR TESTING PIPE LINES:

- (a) Cement and steel shall be supplied to the contractor at rate as shown on schedule 'A' to the extent it will be available and in no way becomes binding department for any claim of compensation for non availability. For any materials not provided in schedule 'A' issued on request with sufficient convincing reason to the contractor the recovery shall be accepted by the contractor without any objection.
- (b) Potable water required for construction & testing shall be provided by the contractor free of charges and he will make every arrangement to fill and drain out the line with suitable means approved by Executive Engineer or his authorized representatives.

9. CARTING OF PIPES

The contractor shall have to cart pipes supplied to him free of cost to the work site at his contractor shall have to make good the damage by paying the cost.

If the pipes are to be put either for fitting them in the alignment as per requirements or for cutting out damaged portions, it shall to be done free of charge by the contractor and shall join it with the pipe line with required necessary jointing materials without any extra claim for this kind of work.

10. PROTECTIONS TO EXISTING STRUCTURES:

All existing pipe lines drainage, sewers, underground telephone cables, overhead electric transmission lines, electric poles and such other structure coming in the way or trenches during the course of excavation work on in proximity of it shall be carefully looked after supported and protected by the contractor without claiming anything extra. If any damage is done to such property of the Government, Semi-Government Local body or private owner the contractor shall make good the damage at his own cost to the satisfaction of Executive Engineer failing which the Executive Engineer will have the damage repaired at the risk & cost the contractor.

11. TESTING OF PIPE LINE AND FITTINGS:

- (a) All the hydraulic structures such as pipelines valve etc. will have to be tested for water tightness. Contractor shall give all hydraulic tests making his own arrangements for water supply and disposal for the same after test. The satisfactory testing shall be defined as laid down in the respective current lattes I.S or B.S as the case may be.
- (b) For testing water pipe and sewer line the testing shall be carried out for the length between sluice valve and manhole or sectional lengths as permitted by Executive Engineer.
- (c) The contractor shall make all arrangements to close ends of pipes branches and gap pieces with suitable arrangement at his own cost for giving hydraulic test. He shall remove these blockings without any extra claim after satisfactory test is given by him.
- (d) The test pressure shall be gradually raised and maintained for a period of 30 minutes i.e. half an hour without any drop in pressure and without further pumping of water into mains as far possible after taking precautions that all the unclosed air etc is driven out systematically from the pipe and sewer lines and all other valves etc. are tested for leakage and make leak proof.
- (e) For approval of air tested etc. in absence of suitable air valves, wash out the contractor shall holes or make any other arrangements without any claim for extra cost.
- (f) All pipes, special joints or valves found to be leaking or cracked or busted or observed unsuitable as per directions of the Executive Engineer, shall be removed forth without any further claim for cost or compensation over and above the tendered rates of paying and jointing line etc.
- (g) The pressure test shall be carried out in the presence of the Executive Engineer or his authorized representative.
- (h) After testing the lines to the satisfaction of the Executive Engineer or his authorized representative the operation of filling trenches shall be taken in hand only after written permission of the Executive Engineer.
- (i) At the time of jointing new pipes line to line dewatering shall be done by the contractor at his own cost. No extra payment shall be made for this work.

- (j) New pipe line shall be connected with the existing pipe lines.
- (k) The contractor shall have to give hydraulic test of pipeline by his own testing equipment of approved quality.
- 12. In case of dispute regarding any matter in connection with the work, the decision of the accepting authority shall be final and binding to the contractor.
- 13. Due to modifications to be made in the scheme, change of alignment due to existing structures etc. some item/items may have to be deleted for which no claim shall be entertained
- 14. Water potable water shall used for C.M.C.C. curing testing and for other purposes.
- 15. For testing of water tank (reservoir) 25% amount will be kept as a deposit for the concern items in R.A Bill after getting satisfactory test from Deputy Engineer the amount of deposit will be released.

The procedure for testing shall be as under: The successful test shall be accepted provided.

- (a) The external does not show sign of leakage and remain appertently dry over period of observation of seven days after allowing a seven day period for absorption after full level.
- (b) The level water surface at F.S.L shall be marked and recorded. The level of water shall be recorded again at subsequent interval of 24 hrs. For a period of seven days. The total draw in the surface level for a period of seven days shall be taken as an indication for water tightness of the tank. The engineer in charge shall take into consideration of the actual permissible nature of the drop in the level whether tank is open or closed & corresponding effect due to evaporation losses keeping in view the factor, tank shall be certify to be water tight, if total drop in surface level for a period of 7 days does not exceed 40mm.

If the structure does not satisfy the condition of tests. The daily drop in water level decreases. The period of testing be extended for further 7 days & specify limit is then reached, consider structure shall be a satisfactory.

DETAILED STANDARD SPECIFICATIONS FOR CISTERN

1. 'Excavation for foundation up to 1.50 mt depth including sorting out and stacking of useful materials and disposing of the excavated stuff up to 50 mt lead.

- a) In all sort of soil & soft murrum
- b) In Hard murrum
- c) In Soft rock
- d) In Hard rock
- The specification of the item shall be as per PWD Hand book Vol. I and II and as per the item moreover.
- The rate including the cost of excavation in all kind of soil including soft murrum sandy and gravelly soil including showing strutting denaturing removing monuments stones old structures etc.
- The excavation shall be donned as per plan. The bottom shall be leveled and site shall be dressed properly as directed.
- The contractor shall have to excavate as per plan, the excessive excavation shall have to brought to the desired level by B.B.C.C. 1:5:10 for which no extra payment shall be done to contractor.
- The contractor shall have to set right the incoming pipe line telephone cable etc. without any extra cost.
- The contractor shall be fully responsible for any damage any accident accrued during excavation.

- Excavated materials shall be stacked at a distance at 20 Mt. from the excavation pit and surplus stuff shall be removed within lead of 90 mt as directed by the Engineer-in-charge.

2. Providing and laying cement concrete in foundation including ramming, curing etc. comp. with using black stone metal or field stone metal 40 mm 50 mm size c.c. 1:4:8 & for bedding in c. c. 1:3:6

- All cement concrete work shall consist of required proportions of aggregates by volume.
- The cement to be used shall be Indian Portland cement complying with recruitments of I.S.S. specification for Portland cement.
- The coarse and fine aggregates for the concrete shall be clean angular and from durable stone, available sand shall be free for all deleterious materials such as dust, lumps of clay, soft and flocky piece organic matter fragments. The sand shall be well graded and shall be cleaned, properly washed and dried before being used. The coarse aggregates will be properly graded to 40 mm to 50 mm and shall be such as all the aggregates will pass through 50 mm size sieve for foundation concrete.
- Mixing shall be done by hand mixing. The concrete must be used immediately after it is prepared and within 10 minutes and in no case shall it be used after the cement has attained an initial set.
- The surface shall be keep wet continuously for 14 days. Forms shall be laid true to dimension as directed.

3. 'Filling in foundation and plinth with murrum or selected soil in layers of 20cm. thickness including watering,ramming and on solidating etc. complete.

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

4. White Stone Bela mesonry block in course in superstructure with stone of approved quality in Lime Mortar 1:6 (1-Cement : 6- course sand) including packing the joints etc. complete.

- The rubble to be used shall be black or white as specified in item and it shall be angular hard durable and free from dead skin and of required size.
- The joints in the masonry shall be more than 12 mm thickness.

- Through stones shall be provided at the rate of one in every square meter area of the masonry.
- The proportion of mortar shall be 1:6
- The sand used shall be fine clean, river sand, free from foreign matter
- The necessary corners and quoins shall be provided and fixed in masonry as per requirement.
- The masonry shall be cured for 7 days.
- The masonry shall be in line level and plumb or true to the specified batter.

5. Providing and casting in situ c.c. in grade M-250 using granite quartzite trap metal of size 12 mm to 20 mm and/or 6 mm to 12 mm including scaffolding centering form work needle vibrated consolidation curing and hydraulic testing etc complete. (Excluding cost of reinforcement) Base Slab ,Vertical wall & Top Slab

- The work shall be carried out as per the description of the item and as per the specification laid down in P.W.D. Hand book vol.I and II and as per instruction of Engineer-in-charge.
- The proportion of the concrete shall be one part of approved and ISI mark cement, one and half parts of sand and three parts of Kapchi by volume.
- The sand shall be coarse angular, free from any impurities and foreign materials dirt etc.
- The Kapchi shall be of black stone crushed metal. It shall be angular, it shall be free from impurities, such as dirt, dust clay and other foreign materials Kapchi shall be of 12mm to 20mm and 6mm to 12mm.
- Cement shall be of approved quality portland cement and shall be ISI marked.
- The ingredient shall be mixed on water tight platform in dry condition and potable water shall be added in required quantity to achieve required work ability of concrete. The mixing shall be done thoroughly by use of machine mixture. The needle vibrator shall be used during concreting.
- The necessary centering shall have to be got approval from Engineer-in-charge by the contractor without any extra cost. It must be water tight. Tools and plant required for the job shall have to be procured by contractor without any extra cost.
- The work shall be carried out in such a manner to get the smooth surface without requirement of plastering after removal of the form work.
- 30% payment shall be with held for want of hydraulic test which shall be released after giving hydraulic test as per the standard practice.

6. Supplying, cutting, bending, binding and placing in position steel as per plan and design and as per ISS 2502 incl. Cost of steel and binding wire for reservoir only including lift up to 6.0 mts. Height. Using deformed (tmt) bars or for steel confirming to ISS Fe- 415

- Using deformed bars of steel confirming to ISS 1139 or ISS 1786.

- The work shall be carried out as per the description of the item and as per the specification laid down in PWD hand book vol. I and II.
- The deformed bars reinforcement shall be placed as per design and drawing with proper cleaning hooking binding, bending etc. as directed it shall be binded with connected wire as per the instruction of Engineer-in-charge.
- The deformed bar shall be as per ISS and shall be tested before being use. In Govt. approved laboratory.

7. Cement plaster 20 mm thick in C.M. 1:2 using water proofing compound of approved quality including finishing etc. complete. For bottom slab & vertical wall.

- The work shall be carried out as per description of the item and as per the specification laid down in PWD hand book vol I&II.
- Cement mortar shall be in 1:2 proportion i.e. one part of cement two parts of sand by volume it shall be 20 mm thick.
- The approved quality of water proof compound shall be thoroughly mixed in dry mix. contractor shall have to bring the water proofing material of approved make and its proportion shall be as specified by the manufacturer. The structure treated with water proofing plaster shall be tested for its water tightness by the Engineer-in-Charge and contractor shall have to arrange the same as per instruction of Engineer-in-Charge.
- The 30% payment shall be with held for water tightness test.

8. Providing 20 mm thick cement plaster in single coat on brick / concrete walls for interior plastering upto floor two level and finished even and smooth in cement mortar 1:3 (1 - Cement : 3 - sand)

- The proportion of the cement, mortar and thickness of the plaster shall be 1:3 --15 mm thickness.
- Sand used shall be fine and clean river sand free from any dirt or foreign matter. If necessary the sand shall be washed with water prior of its use as per instruction of Engineer-in-Charge.
- Before starting the plaster joints of masonry shall be racked cut and surface shall be well watered for about 3 hours.
- The plaster shall be applied in two coats, the thickness of first coat shall be just sufficient to fill up all unevenness in surface. The first coat shall be pressed in to plain surface but the same shall not be smoothened. The second coat shall then be applied while the first coat is till soft, second coat shall be smoothened Niru or cement finishing with sponge shall be applied on smooth surface as specified and as per instruction of Engineer-in-Charge.
- Plaster shall be cured for 10 days.

9. Providing and supplying ISI mark G. I. Pipes with coupling of following class and diameter including all taxes, insurance, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to departmental store, stacking etc. comp. (duty and dia as mentioned in schedule – B)

- Galvanised iron pipes and fittings of various diameter are to be provided by the contractor at his own cost.
- The pipes and fittings shall be of the best quality as approved by the Engineer-in-charge.
- The item includes cost of pipes specials, jointing materials, cutting the pipes to the size, threading, welding etc. comp.
- The rate shall be paid per running meter of length of pipe provided
- The pipe will be jointed with each other by coupling and with necessary jointing material such as white lead hamp or span yarn etc.
- This includes cost of pipes specials, jointing materials, cutting the pipes to the size, threading, welding etc. comp.
- **HYDRAULIC TESTING :-**

The jointed pipes shall not be tested until at least 24 hours after jointing has been made. The line shall be filled up with water taking care to entry of any air and slowly raising pressure to test pressure leakages if any is found during testing is to be rectified by contractor including excavation and refilling, payment of untested section shall be made as per payment schedule.

10. Providing & Suppling ISI mark CI D\F sluice valves, butterfly valves & reflux valves of following class & dia incl. All taxes, insurance, transportation, freight, octroi, ispection charges, loading, unloading, conveyances to deppartment store stacking etc complete. Sluice Valve with ISI Mark

- Sluice valve shall conform to IS 14846 or relevant internationally recognized standards.
- They shall be of non-rising spindle type. The valve shall be furnished with a bushing arrangement for replacement of packing without leakage. They shall also have renewable channel and shoe linings. The gap between the shoe and channel shall be limited to 1.5 mm
- The gate face rings shall be securely pegged over the full circumference. Valve of 350mm and above shall be provided with thrust bearing arrangement for ease of operation.
- Valve of diameter 350 mm and above shall be provided with enclosed gear arrangement for ease of operation. The operation gear of all valves shall be such that they can be opened and closed by one man against an unbalanced head 15% in excess of the maximum specified rating. Valve and any gearing shall be such as to permit manual operation in a reasonable time and not exceed a required rim pull of 400 N.
- All valves, spindles and hand wheels shall be positioned to give good access for operational personnel.
- All hand wheels shall be arranged to turn in a clockwise direction to close the valve, the direction of rotation for opening and closing being indicated on the hand wheels.

11. Lowering, laying and jointing in position following C. I. D/F Reflux valves, Butterfly valves, Sluice valve and Air valves including cost of labour, jointing material, including nut bolts and giving satisfactory hydraulic testing, etc. complete 50 mm Dia

- [A] SLUICE VALVES,
- 1.0 SUPPLY OF MATERIAL
- 1.1 Cast iron double-flanged sluice valve/butterfly valves with two tailpieces suitable to pipe shall be supplied and carted by the contractor as per latest IS. The rate shall include loading, unloading and stacking at site.
- 1.2 The sluice valve/butterfly valves and tailpieces shall be examined before laying for cracks and other flaws. They shall be undamaged in all respect.
- 1.3 The sluice valves/butterfly valves shall be operated before laying.
- 1.4 All grits and foreign materials shall be removed from the inside of the valves before placing.
- 1.5 All the four faces shall be thoroughly cleaned and coated with a thin layer of mineral grease.
- 1.6 The tightening of gland shall be checked with a pair of inside-calipers. Clearance between the top of stuffing box and the underside of the gland shall be uniform all the sides.
- 2.0 JOINTING MATERIAL
- 2.1 The contractor shall provide all necessary jointing materials such as nuts bolts, rubber packing white zinc jute lead wool, C.I. tailpiece etc.
 - 2.2 All tools and plant required for installation of sluice valve shall be provided by the contractor.
- 2.3 All jointing materials shall be approved from the engineer-in-charge before use
- 2.4 The nut and bolts shall conform to specification of materials.
- 2.5 The rubber packing shall conform all specifications as narrated in Specifications of materials.
- 3.0 INSTALLATION
- 3.1 The sluice valve/butterfly valve shall be lowered in to the trench carefully, so that no part is damaged during lowering operation.
- 3.2 If necessary tailpieces shall be fitted with sluice valve first outside the trench and then lowered in to the trench.
- 3.3 The rubber packing shall be three ply and of approved thickness. The packing shall be of full diameter of the flange with necessary holes and the sluice/butterfly valve bore. It shall be even at both the inner and outer edges.
- 3.4 The flange faces thoroughly greased.
- 3.5 If flange faces are not free, the contractor shall use thin fibers of lead wool.

- 3.6 After placing the packing, nuts and bolts shall be inserted and tightened to make the joint.
- 3.7 The valve shall be tightly closed when being installed to prevent any foreign materials from getting in between the working parts of the valve.
- 3.8 Each flange bolt shall be tightened a little at a time taking care to tighten diametrically opposite bolts alternatively.
- 3.9 The sluice valve/butterfly valve shall be installed in such a way that its
- Spindle shall remain in truly vertical position.
- 3.10 The other end of tailpiece shall be fitted with pipes so that continuous lines can work.
- 3.11 Extra excavation required for facility of lowering and fixing sluice valve shall not be paid for.
- 4.0 TESTING
- 4.1 After installation of sluice valve/butterfly valve the same is tested to 1 1/2 times of its test pressure.
- 4.2 The joints sluice valve/butterfly valve shall withstand the test pressure of pipelines.
- 4.3 Defects noticed during test and operation of sluice valve shall be rectified by the contractor at his own cost without any extra claim to the entire satisfaction of the Engineer-in-charge

12. Providing & Supplying at store or site of work miscellaneous water works hardware including freight insurance taxes etc. complete. As per IS CI manhole frame and cover. Light duty 50 to 75 kg. Weight for water supply.

- C.I. M.H. frame and cover size 90 x 60 cm (50 to 75 kg per no.)
- The inside dimension of the CI M.H. Frame and cover shall be got approved before fixing from the Engineer-in-charge of work. It shall be painted with anticorrosive paint in three coats as directed by Engineer-in-charge. The rate includes providing and carting etc. complete.
- The rate shall include all materials as described above. The rates shall be paid per Kilogram of completed work as mentioned in schedule— B

13. Fixing all type of CI frame and cover in C.C. 1:2:4 including carting etc. complete excluding cost of C.C.

- The inside dimension of the C.I.M.H. frame and cover, shall be as per requirement. The weight of whole, unit considered for unit weight.
- The manhole frame and cover shall be got approved before fixing with necessary jointing materials.
- It shall be painted with anticorrosive paint in three coats as directed by Engineer-in-charge.
- The rates include fixing C.I.M.H. frame pre-cast and over in c.c. 1:2:4 etc. complete.
- The rate shall include all labour as described above. The rates shall be paid per Number of completed work as mentioned in schedule— B

➤ **MODE OF MEASUREMENT AND PAYMENT:-**

The rate shall be paid as per payment schedule

14.Wall painting (two coats) with plastic emulsion paint of approved brand and manufacture on undecorated wall surface to give an even shade including throughly brushing the surface free from mortar droppings and other foreign matter and sand papered smooth.

- The rate shall includes all labour as described above. The rates shall be paid per Sqm of completed work as mentioned in schedule— B

➤ **MODE OF MEASUREMENT AND PAYMENT:-**

The rate shall be paid as per payment schedule

SCHEDULE OF PAYMENT FOR CISTERN

1.	CISTERN	Payement %
a.	On completion of excavation and construction upto base slab.	20 % of Quoted rate
b.	On completion of vertical wall	20 % of Quoted rate
c.	Full supporting structure including column, ring beam and completion of top slab / dome	15 % of Quoted rate
d.	Plastering inside & outside etc. complete	10 % of Quoted rate
e.	Procurement and fixing of inlet, outlet, washout, overflow pipes, valves, specials at site	15 % of Quoted rate
f.	Valve ,painting of letters, all miscellaneous items such as paint in three coats etc (Completed with all respect) including water tightness test	10 % of Quoted rate
g.	On hydraulic testing	10% of Quoted rate
	Total	100%

DETAILED SPECIFICATIONS OF PIPELINE

Item No: 2

Providing and supplying in standard length ISI mark rigid unplasticised PVC pipes suitable for potable water with ringfit joint including cost of rings, as per IS specification no. 4985/1988 including all local and central taxes, transportation, freight charges, octroi, inspection charges, loading, unloading, conveyance to the departmental stores and including cost of jointing material etc. complete.

For Indian manufacturers a valid license issued by the Bureau of Indian Standards for marking the PVC pipes with ISI mark is a mandatory requirement both for PVC pipes & rings Standards

- The UPVC Pipes to be manufactured, supplied and delivered under the scope of this contract shall be manufactured in accordance and conforming to IS:4985-2000 or its latest revision or amendments or other authoritative standard that ensure at least a substantially equal quality to the IS:4985-2000 or its latest revision or amendments
- Elastometric sealing ring shall be as per specification of IS – 5382-1985, and ISO: 4633-1996 or it shall be EPDM rubber ring.
- The dimensions, material compositions, tests etc. shall be as per IS:4985-2000 or with its latest revision or amendments.
- The minimum wall thickness weight shall be as per Appendix I of the tender.
- This item includes Job connection with existing Pipe line components or structure, etc with all labour, plant, tools, machinery, etc without any extra payment with required material and labour.
- This item includes Lowering, laying and jointing PVC pipes and specials including cost of labour, materials, with extra couplers and cement solvent as required, giving satisfactory hydraulic testing as per ISI code etc. complete.
- The colour of pipes shall be as per IS 4985-2000
- Bureau of Indian Specifications (BIS) / Indian Standard (IS) shall mean the Latest version issued by BIS.

The material from which the pipes are made shall consist substantially of unplasticised polyvinyl chloride conforming to IS: 10151, to which may be added only those additives that are absolutely needed to facilitate the manufacture of the polymer, and the production of sound, durable pipes of good surface, finish, mechanical strength and opacity.

The bulk density of the UPVC compound shall be 0.50 to 0.53 and the density of UPVC pipe shall be 1.40 to 1.46 g / cm³.

The additional of the manufactures own rework material shall comply to clause 4.2 of IS: 4985.

PVC resin of suspension grade K-66/K-67 shall be used for extrusion of UPVC pipe.

The rate shall be paid per Rmt.

Item No: 3

Excavation for pipe line trenches incl. all safety provisions using site rails and stacking excavated stuff up to a lead of 90 mts. cleaning the site etc. complete for lifts and strata as specified.

(A) In all sorts of soils and soft murrum

The excavation shall be done in all sorts of soils up to 1.00 m. depth and soft murrum and shall be done to the exact width, length and depth as shown on the drawings or as directed by the engineer or his representative.

Any excavation made longer or deeper or wider than as directed, shall not be paid and the contractor shall have to refill such extra excavation at his own expenses to the entire satisfaction of the Executive Engineer or his representative.

At the joints, trenches shall be excavated to an additional depth of 15 C.M. and width of 30 C.M. or as directed. The additional depth and breadth in case of smaller may be kept less may be directed by the department.

No payment shall be made for extra excavations made at the joints or refilling the same.

Timbering & sorting, if necessary shall be carried out as directed by the Engineer-In-Charge without any extra claim.

The excavated materials from the trench shall have to be deposited as and where directed within 90 Mt. from trenches. The side of trenches shall be kept perfectly vertical and beds true to gradient. In obtaining information on the bottom of trenches the usual method of sight rails & bending rods shall be adopted. The contractor shall have to provide and fix and maintain sight rails and boning rods without any extra claims of cost etc.

Necessary guide ropes shall be provided along the length to trenches to ensure safety to pedestrians & vehicular traffic against the danger of it's falling into the trenches. At right times visual indications regarding the danger of open trenches shall have to be made by the contractor.

Necessary wooden planks shall be provided over and across of the trenches whenever necessary.

If for the safety of pedestrians or traffic for any other reasons what so ever it is found necessary by the Engineer-In-Charge to get any part of length of trenches refilled before the testing the same shall have to be done by contractor without any claim for extra cost. If find necessary and directed by the Engineer-In-Charge the contractor shall have to get excavated, the refilled trenches at any time before, during or after the testing without any extra claim for the extra cost. The depth of excavation for the purpose of measurement shall be considered from the G.L. to the invert of pipes plus thickness of pipes.

The rate is inclusive of dewatering if required.

The rate shall be paid Cubic Meter.

(B) -- Do -- do -- in hard murrum and boulders including macadam road.

The specification in general is the same as per item no. 1 (A) as above except that the excavation will have to be carried out in hard murrum and boulders including macadam road.

The rate shall be paid per C. M.

(C) - Do - - do -- in soft rocks masonry in C.M. or lime mortar and in lime concrete.

The specification in general is the same as per item no. 1 (A) as above except that the excavation will have to be carried out in soft rocks, masonry in C.M. or lime mortar and in lime concrete.

The rate shall be paid per C.M.

(D) - Do - - do -- in hard rock with blasting & chiseling.

The specification in general is the same as per item No. 1-(A) above except that the excavation shall be carried out in hard rock with blasting and chiseling.

The rate shall be paid per Cu. M.

Item No.4 :

Lowering, laying and jointing PVC pipes and specials of following class and diameter including cost of conveyance from stores to site of works including cost of labour, material, except cement solvent, giving satisfactory hydraulic testing as per ISI code.

1) The excavation for trenches shall be done before laying of the pipes as per required depth and width so that adequate space can be made available for joint.

2) The pipe with jointing material will be supplied by department as per schedule -A

3) Pipe shall be supplied by department as mentioned in schedule A of the tender and same shall be lifted from store site to site of work at in own cost. During transportation any damage shall be occur to pipes for fittings the replacement of pipes given by the contractor at his own cost.

4) Before laying the pipes it shall be brushed throughout length so that the dust and soil can be removed.

5) Reducer bends tees, and adopter etc. to be supplied by the contractor as per relevant tender item.

6) All the specials such as bends, tees, reducer, etc. shall be fixed as per instruction of engineer-in-charge in the pipeline.

7) The pipe shall be hydraulically tested during the testing no leakage shall be observed. If, leakage observed, it shall be set rightly by the contractor at his own cost as per the instruction of engineer-in-charge. 30% payment shall be made after hydraulic testing of pipeline.

METHOD OF MEASUREMENT AND PAYMENT

The measurement shall be recorded in running meter of pipe length laid along the centerline of axis of pipeline including tees, enlarges, reducers and bends, correct up to 0.01 m length. No payment shall be made for overlaps etc. 30% payment of this item shall be with held for satisfactory hydraulic testing. The payment shall be made on running meter basis as per relevant item of schedule B of the tender.

Item No.5 :

Refilling the pipeline trenches including ramming, watering, consolidating disposal of surplus stuff as directed within a radius of 3.0 km

After pipes are laid tested and passed as complete in all respects. Refilling is done in following manner.

All refilling up to 150m m above pipes top shall be carried out carefully with selected soften stuff out of the excavated stuff without damaging the laid pipes and shall be properly rammed and watered and consolidated.

Inner portion of trenches shall be refilled with approved stuff in layers not exceeding 30 cm. thicknesses and shall be properly rammed and consolidated. If available excavated materials from trenches is found insufficient for refilling the contractor shall have to bring such suitable materials from the elsewhere as directed and no extra claim of this shall be made if any surplus stuff is left over after refilling the same shall be removed to a distance of half a mile or as directed.

If for safety of pedestrian of traffic or for any other reasons whatever it is found necessary by the Engineer-In-Charge for get any parts of length of trench refilled before testing the same shall have to be done by the contractor without claim for cost etc. if found necessary and as directed by the Engineer-In-Charge the contractor shall have to get extra excavation the refilled trenches at any time before during, after the testing without any extra claim for the extra cost.

The site shall have to be cleared of the excavated stuff or any spoils etc. after the completion of work or at any intermediate stage without claiming extra for the same.

Murum of approved quality shall be filled in 150mm thick layer well watered and rammed in foundation and plain as directed by the Engineer-In-Charge.

The rate shall be paid per cubic meter.

Contractor Signature

Deputy Executive Engineer
PHS Sub Division-GWSSB
Kalavad

Executive Engineer
PH Works Division-1 GWSSB
Jamnagar