

Job No. 1

**\*SCHEDULE OF QUANTITY \***

**Name of work :- Improvement of WSS ( OHSR) to village Saner GP Bhatian in Tehsil Nalagarh District Solan (HP)(SH:- S/E of Centrifugal pumping machinery with allied accessories , Laying, jointing & testing of Rising main and Distribution system.)**

Estimated cost :- 193511 /-only  
 Earnest money :- 3870 /-only  
 Time Limit :- 3 (Three months.)

S.No	Description of item.	Quantity.	Rate	Unit	Amount.
1	Excavation in drain and channels etc. earth work for pipes upto all depths in all classification of earthwork such as pick work, jumper work, saturated soil including bailing or pumping out water, blasting soft/hard rock or chiseling soft/hard rock where blasting is prohibited in all lifts including jungle clearance wherever required, trimming & dressing of sides, levelling of beds to correct grade including shoring/struting, planking , timbering & dewatering wherever required stacking the useable/unuseable material/soil seperately & after laying, jointing & testing of pipes, returning the useable soil in trenches in 15cm layers including consolidating of such deposited layer by ramming & watering & then disposing of all surplus excavated soil/ unuseable material as directed with in all leads & lifts including restoration of un-metalled surfaces to its original condition & including cost of diversion for traffic, right signals, fixing caution boards, crossing over trenches for acces to houses, fencing etc. complete in all respect with in all leads and lifts and as per direction of the Engineer-in-charge at site of work.	268.20	Cum		Per Cum.
<b>RISING MAIN</b>					
2	Laying,jointing and testing and commissioning at site in trenches levelled and properly graded plain ended GMS pipe 65 mm (M) confirming to BIS 1239-1990 ( Part -1) of latestwith upto date ammendments capable of with standing required test pressure as prescribed in BIS code in randum length 5.50 to 6.50 mtr. The pipe end shall be bevelled suitable for butt weld including the cost of jointing with butt welding conforming to IS 816-1969 or latest as applicable ( leak proof) in three layer of site of work with welding of standard make and all allied accessories what ever required for welding at site tail piece tees bends manufactured from parent pipes etc. and cutting of pipes wherever required as per site requirement i/c carriage in all leads lifts as directed by Engineer in charge. ( Earth work shall be measured and paid for seperately).	620.00	Rmt		Per Rmt.
3	Providing, welding and fixing of M.S plate flange of 65 mm dia of following flange table , conforming to IS: 6392-1971 or Latest with upto date ammendments to GI pipe after every 90 mtr or as per site requirement including cutting of pipes where ever required welding in three layer ( Leak proof) conforming to specification as prescribed in relevent IS code IS 816-1969 or latest as applicable with upto date ammendments with nuts, bolts and washers and special etc. conforming to IS 1963 or latest with upto date ammendment that is paking sheet including asbestos fiber sheet minimum 3 mm thick and painting with enticrossive paint complete in all respect in all leads, lifts and carriage of materials and as directed by Engineer- incharge.				
	65 mm. dia flange table-17.	2.00	Pair		Per Pair
	65 mm. dia flange table-5.	5.00	Pair		Per Pair
<b>S/E OF CENTRIFUGAL PUMPING MACHINERY WITH ALLIED ACCESSORIES</b>					
4	Supply, erection, testing & commissioning of horizontal spindle, horizontal split casing, radial split Single,/Multistages centrifugal pumps of standarad make such as KSB/ Mather & Platt/ Jyoti / Kirloskar/ Beaconweir /BS & BE conforming to BIS 1520-1980 with upto date ammendments read with BIS 9137-1978 or latest edition to handle clear raw water having charters tics as mentioned in item 1 (a) as under, with impelleres, casing ring, priming funnels & shaft sleeves of bronze, shaft of steel with cast iron casing of suitable capacity coupled directly through a flexible coupling on a common base plate of cast steel /Mild steel to BHEL /Kirlokar/ NGEF/ Crompton / Siemen/Jyoti /GEC make slip ring /squirrel cage screen protected drip proof induction electric motor suitable for operation on the data given below. i/c the cost of all accessories in all lead & lifts & carriage of material at site as per direction of Engineer-In-Charge.	2SetX 5 Set.	HP		Per Set
<p>a). Total Head :- 80.77 Mtr</p> <p>b). Capacity (in LPS) of each pump set : 2.98 LPS.</p> <p>c). Dia of R/Main (in mm) : 65 mm.</p> <p>d).Length of R/Main ( in Mtrs) : 620 mtr.</p> <p><b>A). SITE CONDITIONS:-</b></p> <p>i). Location of Site :- Near village Dattowal.</p> <p>ii) The altitude of place in which the motor is intended to work :- 360.00 mtrs.</p> <p>iii) Humidity :- Wheather generally remains humid during monsoon season.</p> <p>iv). Nature of atmosphere :- As normally encountered in Shivalik Ranges.</p> <p>v). Detail of quality of water :- Clear cold water</p> <p>vi).Water free from sand or not :- No.</p> <p>vii). Water corosive or not :- yes.</p> <p>viii).Turbidity :-</p> <p>ix). NPSH available :-</p> <p>x). Any other information or requirement :- ----</p> <p><b>B). OPERATING CONDITIONS :-</b></p> <p>i). Type of current :- AC three/single phase</p> <p>ii). Operating frequency :- 50HZ.</p> <p>iii). Rated voltage :- 400 (+/-) 10% volts</p> <p>iv). System of earthing if any to be</p>					

adopted :- Double loop earthing as per BIS 3043-1987 latest with upto date ammendments.

- v). No. of pumping hours per day :- 12.00 hours.
- vi). Speed of revolution in RPM :- To be quoted by tenderer.
- vii). Direction of rotation :- To be quoted by tenderer.
- viii). The max. Temp. of cooling air & water in the place in which the motor intended to work in ordinary service :- 35 Degree Centigrade.

**C). MOTOR:-**

- i). Ref to BIS code :- BIS 325-1978 read with BIS 900-1992 (latest) with upto date ammendments.
- ii). Type of enclosure of motor :- As per BIS 4691-1985 or latest with up to date ammendments
- iii). Type of duty :- "S1" i.e. Continuous duty type as per IS-12824-1989 or latest with up to date ammendments.
- iv). Mechanical out put in KW :- Suitable for driving submersible pumps required for duties specified against pumps. To avoid overloading of motor a margin of about 15-20% may be kept in the rated out put of prime mover.
- v). Class of insulation :- Class ~B~.
- vi). Max. permissible temp. rise of motor reqd. if different from that given in B (viii) above :- To be specified by the tenderer.

vii). Particulars of test reqd. & where they are to be conducted:- As per terms & conditions attached.

viii). Particulars as to whether voltage limiting device will be employed:- Star Delta starter, oil immersed, fully automatic to be installed between bus bar & motor. Shunt capacitor is also proposed to be installed for improving the power factor at site.

(NOTE:- Star delta starter upto 37.5 KW & ATS for 37.5 KW & above)

- ix). Motor whether squirrel cage or slipring :- Squirrel cage / slipring. ( Note:- squirrel cage upto 65 HP and slipring above 65 HP)
- x). Details of shaft extension reqd :- just sufficient to provide direct drive by flexible coupling to pump.
- xi). Type of slipring gear whether continously rated or for starting purposes only & wheather to be fitted with brush lifting or short circuit arrangements or both if interlocks are required:- Continously rated for squirrel cage/ Slipring motor.
- xii). Breakway torque in terms of rated load torque & the corresponding breakway starting current which may be taken from the supply with the starting apparatus in:- Breakway torque to be given by the tenderer but the starting current should not exceed 2.50 times of the full load current.
- xiii). Nature of load & any information regarding the driven machine which has a bearing upon the torque reqd. during the accelerated period, the kinetic energy of the moving parts to be accelerated & No. of starts during a specified period :- Sufficient to work the pump offered.
- xiv). Where possible fault capacity of the system to which the motor is connected :- The motor should be able to withstand initial current of 2.5 times the rated current for two minutes without suffering damages or permanent deformations .

**D). PUMPS:- BIS 1520-1980 read with BIS 9137-1978 both with upto date ammendments**

- i) Nos of pumps required :- 2 Nos. Pump. (One set will be stand bye)
- ii). Spare parts required :- For two years normal maintenance as recommended by manufacturer.
- iii). Optional fittings required :- -----

**PUMP OPERATING CONDITIONS:-**

- i). Capacity of pump (in lps) :- 2.98 LPS.
  - ii). Total head (in Mts.) :- 80.77 Mtrs.
- If total head is not known then following details be provided:-
- a) Static head (in mtrs):-
  - b) Minimum depth of water (in mtrs) :-
  - c) Seasonal Variation in water level (in mtrs):-
  - d) Ground level to max. water level (in mtrs) :-
  - e) Ground level to delivery point (in mtrs):-
  - f) Pressure in the suction tank (in kg/cm<sup>2</sup>)-
  - g) Pressure in the delivery tank (in kg/cm<sup>2</sup>) :-
  - iii). Length of R/Main (in mtrs):- 620.00 mtrs.
  - iv). Dia of R/Main (in mm):- 65 mm.
  - v. Drive arrangement:- Direct through flexible coupling on a common base plate.
  - vi. Drive Type:- Electric driven.
  - vii. NPSH reqd:- To be quoted by the tenderer
  - viii). Limits of total head in which the pump is reqd. to operate :- (-) 15% to (+) 10% of total head.
  - ix) Suction/delivery size of pump :- To be specified by the tenderer.
  - x). Efficiency of pump at :- To be specified by the tenderer.
  - a) duty head of as mentioned in in item No.4(a) :- 80.77 mtrs.
  - b) (+) 10 % head of as mentioned in in item No.4 (a) :- 88.85 mtrs.
  - c) (-) 15 % head of as mentioned in in item No.4 (a) :- 68.65 mtrs.
  - xii). Material of construction :- To be specified by the tenderer (manufacturers certificate to be appended)

5 Supplying and installation at site of suitable direct on line/oil immersed star delta/ATS/stator rotor starter of standard make such as MEI/Kilburn/Jyoti/ Siemens/Larson & Tubro conforming to BIS-8544-1979 latest with up to date ammendments for squirrel cage/slipring motor (make to be specified by the tenderers) mounted on panel board with magnetic type over load release & dashpot,time lag,under voltage release with initial oil filling .

Note:- Star - delta - starter upto 37.5 KW , ATS between 37.5 KW to 50 KW and stator rotor starter with slipring motor beyond 50 KW.

2 No.

Each

6	<p>Providing &amp; fixing at site M.S. sheet 16 SWG steel fabricated floor mounted closed almirah type switch board including angle iron post of suitable height and size ISA 40x40x6mm duly painted comprising and capable of mounting the following accessories including cost of providing &amp; fixing of all these accessories with all internal electric connections. The drawing of panel board shall be subject to approval of Engineer in charge.</p> <p>a). Ammeter AC supply, 100 mm dia circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 1248-(P-II)1983 latest with up to date amendments.</p> <p>b). Voltmeter AC supply, 100 mm dia circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 4064-1978 with up to date amendments.</p> <p>c). ICTP switches with HRC fuses of Kilburn/Larsen &amp; Tubro/Standard/Siemens/Havells make and having capacity 30% extra of the operational rating of motor as per BIS 4064-1978 with upto date ammendments immediatly after the power meter of HPSEB.</p> <p>d). Busbar chamber having three copper bars of suitable rating for full length equal to width of board of three live phases and one copper bar of half rating of full length for neutral conforming to BIS 8084-1976 and 11353-1985 read with 5578-1985 all latest with upto date ammendments.</p> <p>e). ACB/MCB/Oil circuit breaker of suitable capacity of Kilburn/L &amp; T/MEI/GEC/Standard make on incoming feeder for motors offered by the tenderer conforming to BIS 2516-1985 latest with upto date ammendments with initial oil filling whenever required &amp; neutral linked under voltage release.</p> <p>f). Three phase indicating lamps complete with toggle switches for individual motors conforming to BIS 3452 part I &amp; II latest with up to date ammendments.</p> <p>g) Earth leakage circuit breaker/relay of recommended make such as Kilburn/L&amp;T/MET/GEC conforming to BIS-2516-1977 with upto date ammendments and of suitable range which should have control box, oprating handel and trip/reset push button, on/ off indicators, re-indicating off spring condition of the circuit breaker for over current protection. The circuit should be equipped with magnet thermal release with metallic tap CTS. It should also be fitted earth fault for tripping of breaker on occurrence of earth fault on/ of breaker load side.</p> <p>h). Hour run meter of reputed make of four digit capacity conforming to BIS-722 (latest edition)/recommendations.</p> <p>i). Suitable three phase voltage monitor relay with all protections &amp; usual indicators with electric sirens against single phasing, low voltage, high voltage &amp; overloading &amp; phase voltage difference as per IS-3842 with up to date ammendments.</p> <p>j). Single phase preventor of reputed make &amp; suitable capacity conforming to IS:1248 (P-V)-1983 with up to date ammendments</p>	1 No. 1 No. 1 Set. 1 No. 1 No. 1 Set. 1 No. 1 No. 1 No.	Each Each Each Each Each Each Each Each Each
7	<p>a). Providing and fixing at site of Kirloskar/Leader/KSB/ Fouress make of suitable dia cast iron double flanged sluice valve of 65 mm dia Class-PN-1.6 having size one size larger than the nominal dia of delivery of the pump or equal to dia of column pipe ( in case of Tube well) and capable of withstanding nominal seat pressure as mentioned in item No. 4-(a) + surge pressure conforming to BIS standards with up to date ammendments <b>for delivery line of pump.</b></p> <p>b). Providing and fixing at site of Kirloskar/Leader/ KSB/ Fouress make of suitable size cast iron double flanged swing/ check type reflux valve of 65 mm dia Class PN- 1.6 having bye pass arrangement &amp; size one size larger than the nominal dia delivery size of pump or equal to dia of column pipe (in case of tube well) and capable of withstanding nominal seat pressure as mentioned in item No.4 -(a) &amp; conforming to standards BIS with up to date ammendments <b>for delivery line of pump .</b></p>	1 No. 1 No.	Each Each
8	<p>a). Providing, laying, jointing &amp; testing at site suitable size copper PVC insulated armoured power three &amp; half core cable ( <b>for supply side</b>) conforming to BIS 1554 (Part I) -1988 or latest with up to date ammendments of Siemens/Gloster/ICC/ EICO/National/IEC make from meter of HPSEB to circuite breaker &amp; from circuite breaker to bus bar switch &amp; starter (one cable carrying all three phases) including all other electrical equipment/accessories such as thimbles, flexible pipe, solder, nuts &amp; bolts, cable glands etc. laid in pipes or trenches under floor The type, size &amp; make will be subject to approval of HPSEB authorities. In case of non acceptance by HPSEB authorities it shall have to be replaced by the tenderer free of cost. (20.00 Mtr.) The size of cable shall be 10.00 mm square.</p> <p>b). Providing, laying, jointing &amp; testing at site PVC jointless flat water proof cable ( <b>for Motor Side</b> ) as per BIS 694-1990 (latest with up to date ammendments) suitable for the pump sets offered from circuite breaker to motor &amp; motor to starter including all other electrical equipments such as thimbles, flexible pipes, solder, nuts &amp; bolts, cable glands etc. laid in pipes or trenches. The type, size &amp; make will be subject to approval of HPSEB authorities. In case of non acceptance by HPSEB authorities it shall have to be replaced by the tenderer free of cost. (20.00 Mtr.) The size of cable shall be 4.00 mm square.</p> <p>c) Providing and laying at site double loop earthing with Copper/G.I plate 600x600x3mm thick electrode complete with material such as charcoal, common salt, GI pipes, thimbles, nuts &amp; bolts, digging of pits, GI wiring &amp; 25x5mm copper strips of required capacity conforming to BIS 3043-1987 latest with up to date ammendments suitable for above motors &amp; other electrical equipments.</p> <p>d). Supply &amp; errectionat site of floor/wall mounted power factor shunt capacitor conforming to BIS 2834-1986 or latest with upto date ammendments of BHEL/GEC/Machneil/ Mager/Bajaj/L&amp;T make to raise the prevailing power factor at site to 0.95 for direct connection to induction motor individually, of required KVAR according to HP of motor offered including cable Siemens/Gloster/ICC make from busbar chamber to capacitor &amp; also including L&amp;T/Kilburn/Standard/Siemens/Havells make ICTP switches conforming to BIS 4064-1978 or latest with HRC fuses (Range to be specified by the tenderer).</p>	1 Job 1 Job 1 Job	Job Job Job
9	<p>Supplying and fixing at site of 100mm dia circular dial pressure gauge of suitable range &amp; standard make such as Fiebeg/Bourden/Precision/PREGA with all accessories such as stop cock, copper tubing etc. conforming to BIS 3624-1987 or latest with up to date ammendments.</p>	1 No.	Each

10	P/F double flanged suction, delivery pipe & common header of GMS pipe (M) grade considering site requirements, NPSH required & available & common header having area equal to two times the area of delivery branch of pump including tapers, flanges, rubber gaskets 3mm thick as per BIS-2712-1978 nuts & bolts as per 1364-1983 & special up to 5 mtrs. away from the outer wall of pump house as per layout drawings approved by Engineer-in-Charge. The pipes shall be capable of withstanding minimum 1.5 times the total pressure as indicated in item no 1 a. or total dynamic pressure(+) surge pressure whichever is more. The size of suction pipe shall be one or two sizes larger than the suction size of pump such that velocity of flow in suction pipe is not more than 2.50 mtr/sec & delivery pipe shall be of size one size larger than nominal delivery size of pump i/c cost of jointing delivery pipes and common header with R/Main complete in all respect. <b>NOTE:- Actual laying to be done as per final drawings to be approved by the Engineer in charge</b>	1 Job	Job
11	Supply of antivibration pads conforming to BIS 6337-1971 or latest with upto date amendments of suitable size for above machinery.	2 Nos.	Each
12	Erection of all equipments from S.No.5 to 6, 9 & 10 i/c cost of tees, bends tapers & any other fittings required as per site conditions & as per directions of Engineer-in-Charge.	1 Job	Job

**DISTRIBUTION SYSTEM**

13	Laying, jointing and testing in trenches galvanised mild steel tube of medium grade complete including providing and fixing tube fitting such as union, tees, socket etc (excluding cost of bends and valves) for the following dia as per direction and to the entire satisfaction of Engineer-in-charge.				
	a) 50 mm dia (Light grade)	150 Rmt.		Per Rmt.	
14	Providing and fixing double flanged cast iron sluice valve of Kirloskar/ Kilburn/IVC/Fouress/Gled/ Bhel/ Leader/ Bir/ Kartar make conforming to IS- 780 including rubber sheet and nut bolts complete of following internal dia. 50 mm dia PN-1	3 Nos		Each	

Total

**\* TERMS AND CONDITIONS \*** **( Rs. One Lac ninety three thousand five hundred eleven**

- 1 The works shall be carried out as per IPH specification
- 2 Security, GST, income tax, labour cess and other statutory deduction will be deducted as applicable.
- 3 The Contractor is fully responsible for watch and ward of the material at site of work.
- 4 Nothing shall be paid for rejected work/ material.
- 5 G.I. Pipe will be issued to the Contractor free of cost from IPH Divisional Store Nalagarh in case of theft from the custody of contractor the panel recovery will be effected on SIR which as under:-  
50 mm dia (L) S/S = 210 /- Per Rmt.,  
65 mm dia (M) P/E = 312/- Per Rmt.

**Terms & Condition for Pumping machinery attached.**

Executive Engineer  
I & PH Division Nalagarh.

**Job No. 2**

**SCHEDULE OF QUANTITY**

Name of work:- Improvement of WSS ( OHSR) to village Saner GP Bhatian in Tehsil Nalagarh , Distt. Solan (HP).  
( SH:- C/O Over head storage tank reservoir 40,000 litres capacity with 15 mtrs staging height at Node No. 1 )

Estimated Cost:- 540000  
Earnest Money :- 10800  
Time:- 6 months.

S.No.	Description of item	Qty.	Rate	Unit	Amount				
1	Construction of reinforced cement concrete circular over head storage tank of 90,000 litres capacity at Node-1 including structural design and drawing including carriage of material with in all leads & lifts. Sub-head./ Node No.								
		Capacity in litres	Staging height in mtrs.	Inlet pipe dia	Out let pipe dia	Scour pipe dia	Over flow pipe dia.		
1	1	40000	15	65	80	80	100	40000	P/Litrs
									<b>Total:-</b>

**The Reservoir shall comprise of the following:-**

- (a) Laying and jointing of inlet 65 mm dia , outlet 80 mm dia , scour 80 mm dia and over flow G.I pipes 100 mm dia ( Medium class) with flange of above mention diameter after every three meter complete with all and water level guard (indicator) shall be provided by the contractor/firm in the OHSR at required height.
- (b) Providing and fixing of cast iron manhole cover conforming to IS-1725-1991 with upto date ammendements minimum two number of 500mm internal diameter including frame of medium duty.
- ©. Cast iron ventilating pipe with cowl and mosquito proof cover of sufficient(length) suitable for over head tank as per standard Engineering prattice and subject to approval of the Engineer-in-charge.
- (d) All other required accessories such as bell mouth, control valves for inlet and outlet of cast iron class PN 1.6 lightening conductor and water level guard (indicator) shall be provided by the contractor/firm in the OHSR at required height.
- (e) Suitable RCC spiral stair case 100 cm wide with waist slab for RCC steps rising spirally around the outer face of staging columns followed by landings supported on cantilever of approved design at every point
- (F)The tank shall be painted with water proofing cement paint out side complete in all respect.
- (g) There shall be 1 mtr.wide gallery all around the container with provision of minium three pipe of 20 mm dia GMS pipe railing 1.00 mtr supported with M.S angle 50x50x 6mm
- (h) Minium wall thickness shall be 15cm.

Executive Engineer,  
IPH Division Nalagarh.

**Note:- Other terms & condition attached seperately.**

**TERMS AND CONDITIONS :-**

- 1 The structural design and drawing shall be got approved from the office of Superintending Engineer, IPH Circle Solan within quoted rates.
- 2 All the fittings shall be embedded in the structure while the work is in progress and all connections shall be left outside the structures with sluice valve, control valves and other accessories in position ready for connection with incoming and outgoing pipes. The direction of scour pipe be kept towards the nearby drain as per the direction of the Engineer-in-charge & it shall to be 5 mtrs. Beyond the boundary of the structure.
- 3 All the special/ fittings/ valves shall be confirm to relevant BIS standard with upto date ammendments.
- 4 Bearing capacity of soil shall be tested by the tenderer at his own cost, and design envolved accordingly. For tendering purposes the bearing capacity may be taken as 10MT/m 2.
- 5 The work shall executed as per HPIPH/PWD specification and instruction of the Engineer-in-charge.
- 6 Security, GST and income tax shall be deducted as per rules.
- 7 Cement shall be issued @ Rs 255/- per bag and steel @Rs. 3890/P.qtl. At IPH store Nalagarh.
- 8 Royalty certificate in respect of stone aggregate sand etc. shall be produced by the contractor.
- 9 In addition to normal security 7.5% amount will be with held for want of testing of tank against leakage.Which shall be released only after successful testing of tank against any leakages.
- 10 The outlet pipe shall be placed 0.15cm above the floor level of reservoir to provide the space for sediments to settle and outlet pipe to be provide with stainer. The capacity of tank shall be calculated between inlet and outlet pipe level.
- 11 The site shall necessarily be inspected by the tenderer to access the nature of starta and other relevant data required for the design of structure. Nothing extra shall be payable on account of any unforeseen difficulties what so ever.
- 12 The work shall be started only after the approval of the structural design & drawing of the reservoir as supplied by the contractor by competent authority of the department which shall be submitted by the contractor/ firm with in 30 days of issue of letter of itent/letter of award.
- 13 The excavation shall be cover all types of soil and rocks involved at site including cutting by chiselling where involved. No blasting shall be permitted.
- 14 The complete structural design shall be based of IS code 456 & 3370 ( Part-1 to IV) latest edition and IS-1893.Structuural design be analysed for effect of wind. Also since area falls under seismic zone IV and therefore the structure need to be checked for seismic condition as well & final design be evelved for critical condition .While submitting the structural design and drawing of OHSR the contractor must ensure that the list of all text books/reference book/IS code as well as manual etc. referred for evolving design and drawing is submitted a/w design & drawing without which whole design will be considered in complete & deptt.will be at liberty to accept or reject such design & drawings & apply corrections & amend drawings accordingly. All such corrections/ammendments shall be binding on the tenderer.
- 15 The free board shall not be less than 0.15mtrs.
- 16 The crushed stone aggregate of specified grading shall only be used.
- 17 The RCC work shall be carried out with mechanical mixer and with the help of power driven Vibrator,Hand mixed concreteshall not be permitted.
- 18 Shuttering used for RCC work shall be of steel plates.
- 19 Minimum clear cover to steel reinforcement in case of various structural members i.e. liquid retaining structure & members in contact with soil etc. shall be as specified in relevant IS code latest with upto date ammendments.
- 20 The RCC work in liquid retaining structure shall be of mix M-25(design mix) and that in all other components not intouch with water shall be M-20. PCC 1:3:6 shall be provided as base concrete.
- 21 To ascertain the quality and strength of concrete mix test cubes for every components shall be taken as per PWD specifications in the presence of Engineer-in-charge and the same be got tested in Govt.laboratory at the
- 22 Necessary brick/concrete supports shall be provided for pipes/valves etc. Brick masonry/stone masonry chamber with precast RCC covers shall be provided for housing the valves where ever required as directed by the
- 23 All clause of work, other than those not other described herein shall be executed in accordance with the principals laid down in Punjab PWD specification/HP PWD specification/ relevant IS code ammendment upto date.
- 24 The execution/construction joints shall be provided as per relevant IS codes.
- 25 Design mix for all concrete work shall be as per DNIT and sample shall be got tested by the firm at his own cost & expense.
- 26 All G.I pipes shall be issued by the department free of cost from IPH store Nalagarh, however fittings, bends,flanges, gasket,rubber sheet,union,clamps etc. of specified make as per direction of engineer incharge.should be arranged by the contractor at his own level & nothing extra shall be paid to the contractor on this account
- 27 The tender forms shall be issued to those contractors who have experience to construct the OHSR and presently are working in this department and performance is found satisfactory.
- 28 Specification of lightening conductor shall be as per relevant code with proper earthing arrangements with copper strips.

29 All valves shall be ISI marked & incase of C.I valves minimum class shall be PN 1.6 ..

**30 Payments schedule shall be as under :-**

a)	After casting footing upto ground level .	12.50% of L.S amount.
b)	After casting staging (colmn/shaft) half.	12.50%
c)	After casting full staging.	12.50%
d)	After casting vertical walls,bottom dome and gallery.	15%
e)	After casting top dome.	20%
f)	After fixing all accessories and pipes etc.	20%
g)	After testing of tank.	7.50%

Executive Engineer,  
IPH Division Nalagarh.

**Job No. 3**

<b>DRAFT SCHEDULE OF QUANTITY</b>		Estimated Cost Rs.381620/- Earnest Money Rs. 7650/- Time:- 3 Month.			
Name of work:- Construction of 8 Nos Tube well in Nalagarh area , Distt. Solan ( HP). ( T/ Well Reru, Malpur GP Bhogpur, Nawangram, Saner in GP Bhatian, Jhajra, Kotla, Bhatian and Gharoti ( Basmokriwalan) (SH:- Preparation of working estimates including Topographical survey on Shajra Plan etc. by outsourcing).					
Sr. No	Description of item.	Qty	Rate	Unit.	Amount.
1	2	3	4	5	6
1	Carryig out topographical survey (by Total Station/DGPs or any latest equipment) with marking of visible features, including walls, main trees, electric poles, buildings, river creeks, roads, footpath an existing infrastructures etc. Preparation of plan at 1:1000 Scale/Shajra Map scale and plotting of contours at 0.50 meters to 1.00 meters intervals, supply the same in six sets with L-Sections etc. and preparation of working estimate based on detailed survey and investigation the detail study of all related parameters given in the following check list and as per terms and conditions with detailed hydraulic & structural design. cost estimation of the Tube well given below:- Detail of Tube wells with discharge:- S.No. Name of Tube well Discharge Dependable design discharge	1		Job	
	1. Tube well Malpur GP Bhogpur 10.50 L.P.S. 8.40 L.P.S.				
	2. Tube well Nawangram 18.00 L.P.S. 14.40 L.P.S.				
	3. Tube well Saned GP Bhatian 33.00 L.P.S. 26.40 L.P.S.				
	4. Tube wellJhajra 25.00 L.P.S. 20.00 L.P.S.				
	5. Tube well Kotla 30.00 L.P.S. 24.00 L.P.S.				
	6. Tube well Bhatian 33.00 L.P.S. 26.40 L.P.S.				
	7. Tube wellGharoti( Basmokriwala) 11.00 L.P.S. 8.80 L.P.S.				
	<b>Total</b>				
<p><b>TERMS &amp; CONDITIONS</b></p> <p>1. Detailed map of the project depicting availability of area to irrigate with adequate water/discharge, Crop water requirement.</p> <p>2. Preparation of L-Section of all the Pumping/Gravity/Distribution system.</p> <p>3. Contour map of the project area and marking of outlets/checks for 2 to 3 hectare.</p> <p>4. The consultant may also keep in view the sites already identified by the IPH Department.</p> <p>5. The agronomic and climatological data for determining the post-project cropping pattern will be adopted in consultation with the Agriculture and Horticulture Departments.</p> <p>6. Field Visit:- The necessary field visit shall be conducted by the Consultant for collecting the data including carrying out of the survey work.</p> <p>7. The working estimate with workable drawings should contain specification of each component of the work giving latest code reference etc. from the proposed structure including other details such as L-Section of Rising Main, Gravity main, location of pump house, position of outlets, grades of distribution system and field channels etc.</p> <p>8.The revenue data shall be arranged by the consultant from concerned revenue Patwaries.</p> <p>9. Security, GST, income tax shall be deducted from each bill as applicable.</p> <p>10. SUBMISSION OF REPORT:-</p> <p>a) The consultant shall be required to furnish the reports in 6 copies of each tube well &amp; one soft copy within stipulated time period.</p> <p>b) Payment Schedule:-</p> <p>i) On Submission of Survey &amp; Proposal (02 copies) = 30% of the Total awarded amount.</p> <p>ii) On submission of working estimate ( 6 copies) = 50% of the Total awarded amount</p> <p>iii) On clearance from Zonal Office. = 20% of the total awarded amount.</p> <p>11. The tenders of enlisted HPIPH Contractors having relevant expeience in the similar works shall be accepted.</p>					
<p>Execuive Engineer, IPH Division, Nalagarh.</p>					

**Job No. 4**

<b>SCHEDULE OF QUANTITY</b>		Estimated Cost Rs.340120/- Earnest Money Rs. 6900/- Time:- 3 Month.																																							
Name of work:- Construction of 20 Nos ( 10 Nos) Tube well in Nalagarh area , Distt. Solan ( HP). Phase - II ( T/ Well Aduwal, Bagheri Mundan bass,Tikari, Plasra, Kanganwal, Dabhota, Androla, Kartidu Majra, Bagheri Chamalian and Khokhra . (SH:- Preparation of working estimates including Topographical survey on Shajra Plan etc. by outsourcing).																																									
Sr. No	Description of item.	Qty	Rate	Unit.	Amount.																																				
1	2	3	4	5	6																																				
1	<p>Carryig out topographical survey (by Total Station/DGPs or any latest equipment) with marking of visible features, including walls, main trees, electric poles, buildings, river creeks, roads, footpath an existing infrastructures etc. Preparation of plan at 1:1000 Scale/Shajra Map scale and plotting of contoures at 0.50 meters to 1.00 meters intervals, supply the same in six sets with L-Sections etc. and preparation of working estimate based on detailed survey and investigation the detail study of all related parameters given in the following check list and as per terms and conditions with detailed hydraulic &amp; structural desim. cost estimation of the Tube well given below:- Detail of Tube wells with discharge:-</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">S.No.</th> <th style="text-align: left;">Name of Tube well</th> <th style="text-align: left;">Discharge</th> <th style="text-align: left;">Dependable design discharge</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Tube well Aduwal</td> <td>14.00 L.P.S.</td> <td>11.20 L.P.S.</td> </tr> <tr> <td>2.</td> <td>Tube well Tikari</td> <td>10.50 L.P.S.</td> <td>8.40 L.P.S.</td> </tr> <tr> <td>3.</td> <td>Tube well Plasra</td> <td>12.00 L.P.S.</td> <td>9.60 L.P.S.</td> </tr> <tr> <td>4.</td> <td>Tube well Kanganwal</td> <td>13.00 L.P.S.</td> <td>10.40 L.P.S.</td> </tr> <tr> <td>5.</td> <td>Tube well Dhabota</td> <td>22.00 L.P.S.</td> <td>17.60 L.P.S.</td> </tr> <tr> <td>6.</td> <td>Tube well Androla</td> <td>24.00 L.P.S.</td> <td>19.20 L.P.S.</td> </tr> <tr> <td>7.</td> <td>Tube well Katirraru Majra</td> <td>12.00 L.P.S.</td> <td>9.60 L.P.S.</td> </tr> <tr> <td>8.</td> <td>Tube well Khokhra</td> <td>17.35 L.P.S.</td> <td>13.88 L.P.S.</td> </tr> </tbody> </table>	S.No.	Name of Tube well	Discharge	Dependable design discharge	1.	Tube well Aduwal	14.00 L.P.S.	11.20 L.P.S.	2.	Tube well Tikari	10.50 L.P.S.	8.40 L.P.S.	3.	Tube well Plasra	12.00 L.P.S.	9.60 L.P.S.	4.	Tube well Kanganwal	13.00 L.P.S.	10.40 L.P.S.	5.	Tube well Dhabota	22.00 L.P.S.	17.60 L.P.S.	6.	Tube well Androla	24.00 L.P.S.	19.20 L.P.S.	7.	Tube well Katirraru Majra	12.00 L.P.S.	9.60 L.P.S.	8.	Tube well Khokhra	17.35 L.P.S.	13.88 L.P.S.	1		Job	
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