SCHEDULE OF QUANTITY

Estimated Cost:- Rs.4,72,500/-only

Name of Work:- C/O 8 Nos tube well in Nachan Consistuency in Tehsil SunderNagar Distt, Mandi HP (SH:-Supply & errection of centrifugal pumping machinery alongwith allied accessories for tube well No.8 (IInd stage.)

Earnest Money: Rs 9,500/-only

Time Limit:- Six month

S.NO.	DESCRIPTION			Quantity		RATE In Fig.	RATE In Words	UNIT	AMOUNT
	Tube well No.8 (IInd stage).								
1	**Supply of horizontal spindle horizontal/ redial split casing/end suction (Backpull out arrangement) Single/ double/ Multistage centrifugal pumps of combination of pumps in series/parellel of recommended make such as mather and platt/KSB/Beason well/Kirloskar/BE/Jyoti as per BIS 1520-1980 with upto date ammendments read with IS9137-1978 or latest eddion suitable for lifiting water for under mentioned charactensties with broze immellers/priming funneis casing ring and shaft sleeves of broze shaft of steel grade with cast iron casing coupling diractly through a flexible coupling on a common mild steel base plate (base plate to be from the manufacturer of the pumping unit only) to slip ring/screen protected drip proof induction motor/motors of standard make such as Kirloskar/BEL/cromption/NGEF/GEC/Siemens/Jyoti ABB and suitable for opration on 415(+/-) 5% volts 50 cycles/ second 3 phase AC electric supply.The power of electric motor/motors should be at least 10% in excess of the maximum power required by the pump/pumps in the operation range of (+) 10% and (-) 15% of the duly point head. The motor as per IS 325-1978 with updte ammendments read with IS 900-1972. It should include cost of bearing nuts bolts and painting etc and should meet the following requirement.**		A.PumpsSpecifications i.Make ii.model iii.No of stages. iv.Material (Manufactures certificate to be appended. Performance. i. Head(H) ii.Discharge(Q) iii.BHP absorbed iv.Efficiency (n) v.NPSH (b) Motors secification **B. Motors** Specifications i.Make ii.Model iii. Motor rating (KW) iv.Speed v.Insulation.	2 Set	Set			Per Set	
i)	Discharge (Q)	13.90 LPS							
ii)	Total dynamic Head	101.07 Mtrs.							
a)	LWL in sump wel(h)	1007							
b.	Shaft level	1005							
c.	Level of discharge point	1098.5							
d.	Suction lift.	1098.50 Mtrs.							
e.	Discharge Head								
f.	Static Head.	93.50 mtr.							
iii.	Rising main:-								
a	Length	1830 Rmt							
b.	Dia	200 mm dia							
iv.	Pumping Hours.	20 Hours.							
v	Alitude of installation above MSL metre.	Dia 200mm							
vi	Characteratices of water	cold water							
a.	Temperature								
b.	Ambient temp								
c.	Turibudity PPM	50PPM							
d	Alkalanrity								
e.	Size of the solids								
f.	Others.								

2	Providing ICTP Main switch with HRC fuses of Kilburn/L&T/ Havells siemens/standard/Havells make and having capacity 30% extra of the operational rating as per IS 4064-1978 with upto date ammendments immediately after the power of the HPSEB.	ICTP SWITCH	2 No.				Each	
		i.Make						
		ii.Type						
		iii.capacity						
3	Providing M S sheet 1 fabricated floor mounted closed (Almirah type) switch board i/c angle iron post of suitable height and size ISA 48x48x6mm only painted with steel sheet of 16 gauge comprising and capable of mounting the following accossories with all internal.. The drawing of panel board shall be subject to approval of Engineer in charge.	Panal/Switch Board	1No.				Each	
		i.Drawing						
		ii.Layout Plan						
i)	ACB/Oil circuit breaker of Kilburn?L&T/MEI/GEC make and of suitable capacity on incoming feeder with or without initial oil failing as the case may be with natural linked under voltage releases as per IS 2516-1985 with up to date ammendments with upto date amendments.	**ACB/OCB**	1No.				Each	
		i.Make						
		ii.Type						
		iii.Range						
		iv.Capacity						
ii)	Earth leakage circuit breaker of recommended standard/ Kilburn/L&T/MEI/GEC /Indo asian as per BIS-2516-1977 with upto date ammendments and of suitable range with which should have control box , operating handle and trip/reset bush button on/off indicators, re-indicating off spring condition of the circut breaker for over current protection. The circuit should be equipped with magnet thermal release with metallic tap CTS. It should also be fitted with earth fauilt for tripping of breaker on occurance of earth fault on/off breaker load side.	ELR	1No.				Each	
		i.Make						
		ii.Type						
		iii.Range						
iii).	The voltage monitor Relay 3 phase with all protection and usual indictor and electric siren against single phasing low voltage high voltage reverse phasing overloading and phase voltage difference as per IS 3842(Latest Edition) 100mm diametre cirlcular dial flush moint type.	Voltage Monitor Relay	1No.				Each	
		i.Make						
		ii.Type						
		iii.Range						
iv).	100mm diameter circular dial AC supply voltmeter of recom mended make AE/IMP/Havells of suitable range with selector switches as per IS 4064-1978 with uptodate ammendments.	Voltmeter	1No.				Each	
		i.type						
		ii.Make						
		iii.Range						
v).	Power factor metre of standard make as per relevant IS code with upto date ammentments	Power factor Meter	1No.				Each	
		i.Type						
		ii.Make						
vi).	Frequency meter of standard make as per relevant IS code with upto date ammendments	Frequency	1 Set				Each	
		i.type						
		ii.Make						
		iii.Range						
vii).	Busbar chamber with 3 and half copper strips of suitable rating for full length equal to width of board of 3 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.	Busbar chamber	1 No.				Each	
		i.Make						
		ii.Type						
		iii.Range						
viii).	ICTP switches with HRC fuses of Kilburn/L&T Siemens/Stands/Havells make and of suitable capacity as per IS4064-1978 with upto date ammendments.	ICTP switches	2Set.				Per Set	
		i.Make						
		ii.Type						
		iii.Range						
ix.	Three phase indicator lamps complete with toggle switches for individual motors as per IS-3452(P-I&II with upto date ammendments.	Three phase indicator	2Nos				Each	
		i.Make						

		ii.Type						
		iii.Range						
x.	100mm dia circular dial AC supply Ammeter of AE/IMP/Havells make of sutiable range with selector switches and TS operated as per IS 1248(P-II) 1983 with upto date ammendments.	Ammeter	2Nos				Each	
		i.Make						
		ii.Type						
		iii.Range						
xi.	Capacitor of mechneil/BHEEL/GEC/L&T make as per IS 2834-1986 with upto date ammendments to raise the power factor at site of 0.95 for director connections to induction motor individus fly of required KVA rating according to HP offered including cables as per reveant IS I code (of siemens/Glocter/EEC make) from bus bar chamber ICTP switches of appropnate range as per IS 4064-1978 with upto date ammendments.	Capacitor	1 No.				Each	
		i.Make						
		ii.Type						
		iii.Range						
xii.	Providing and fixing change over switch of reputed make to suitable capacity	Change over	1 No.				Each	
		Make						
xiii.	Single phase preventer of reputed make to suitable capacity	Capacity	1 No.				Each	
4	Providing suitable oil in mersed starter delta/direct on line/auto transformer/stator rotor starter of MEI/Kilburn/Jyoti /L&T/Siemens make as per IS 8544-1979 with upto date ammendments for squirrel cage/slip ring motor mounted on panel board with magnectis type over load release and dashpot time lag undeer voltage release with or with out initial oil filling as the case may be with single phase preventor as per IS 1246(P-V) 1983 with utp date ammendments	Starter	2No.				Each	
		i.Make						
		ii.Type						
		Single Phase Preventor						
		ii.Type						
		i.Make						
a	Providing Hour run meter of recommended make and suitable capacity as per IS-722 (Latest edition)	Hour run meter	2No				Each	
		ii.Type						
		i.Make						
		iii.Capacity						
5	Providing antivibration pads under the pumps and motors of suitable size for the above pumping machinery as per IS 637-1971	antivibration pads	1No				Each	
		i.Size						
		ii.Make						
		iii.Material						
6	Providing cast iron flanged/screw type foot vales with strainer as per IS4038-1986 with upto date ammendments of Kirloskar/Mechnieil/Kilburn/Leader/Kartar make 250mm dia.	Make	1No				Each	
		Class						
		Seal Pressure 10Kg/cm Sqm						
		Material						
7	Providing double flanged cast steel sluice valve of leader /BHEL/Kirloskar/Kilburn/Fouress Katar make and of 250mm dia for the such on pipe and capable of with standing the nomal seal pressure as per IS 1414AP 600 with upto date ammendments.**on suction side.**	Sluice Valve	2 Nos				Each	
		Make						
		Class						
		Seal Pressure 10Kg/cm Sqm						
		Material						
8	Providing double flanged cast steel sluice valve of leader /BHEL/Kirloskar/Kilburn/Fouress Katar make and of 150mm dia for the such on pipe and capable of with standing the nomal seal pressure as per IS 1414AP 600 with upto date ammendments.**as per size of delivery of pump.**	Sluice Valve	2 Nos				Each	
		Make						
		Class						
		Seal Pressure 10Kg/cm Sqm						
		Material						
9	Providing double flanged cast steel reflux valve of leader /BHEL/ Kirloskar/ Kilburn/Fouress Katar make and of 150mm dia for the such on pipe and capable of with standing the nomal seal pressure as per IS 1414AP 600 with upto date ammendments.**as per size of delivery of pump.**	Sluice Valve	2 Nos				Each	
		Make						
		Class						
		Seal Pressure 51Kg/cm Sqm						
		Material						

10	Providing double flanged cast steel reflux valve of leader /BHEL/ Kirloskar/ Kilburn/Fouress Katar make and of 200mm dia for the such on pipe and capable of with standing the nomal seal pressure as per IS 1414AP 600 with upto date ammendments on rising main.	Sluice Valve	1 No.				Each	
		Make						
		Class						
		Seal Pressure 51Kg/cm Sqm						
		Material						
11	Providing 100mm dia circular dial pressure guage of fiebig/Bourden PREGA/Precision make complete with all accessories such as stop cock copper fubing etc as per IS-3624-1987 with upto date ammendments.	pressure guage	2Nos				Each	
		i. Make						
		ii.Range.						
12	Providing discharge meter of standard make to be fixed on the rising main near the storage tank as per the directions of the Engineer-in-charge as per IS 2373-1981 with upto date ammendments.	Discharge Meter	1 No.				Each	
		i. Make						
		ii Type						
		iii.Range.						
13	Installation of all the items appearing at Serial No.1 to 11 as per the systematic systematic drawing attached with the tender decument (Drg No.1)		Job				Job	
14	Providing and fixing double flanged MS/GI piping work (layout to be approved by the Engineer-in-charge) for suction and delivery pipes suitable of pump (s) offered and common header as for the R/main respectively complete with all specials such as bends tees producers/ increasers with companion flanges matching with the relevant specifications of the accessories as including in the drawing No.2 including rubber/asbestos gasket of minimum 3mm thickness as per IS 2712-1979 and required Nos of nuts and bolts as per IS 1364-1983 The pipes shall be as per relevant IS code & to withstand 1.5times total head stipulated under item No.. The size of the various components to be as under and will extend upto 5 metres from outer wall of the pump house in the direction to be joined **comman header.**	Suction pipe	Job				Job	
		Material						
		Grade						
		Thickness						
		Pressure rating.						
		Delivery pipe and common header						
		Material						
		Grade						
		Thickness						
		Pressure rating.						
15	Providing and laying copper PVC insulated armoured power cable (One cable carrying all the three phases) of suitable size and capacity to motors and all other electrical equipments as per IS 1554(P-I) 1988 or latest with upto date ammendments of siemens/Gloster/IEC/ICC/EICO /National/BRMDLA make including all other accessories such as thimbles flexible pipes solder nuts and bolts cable glanders etc laid in pipes or trenches under floor.	Armoured power cable						
		A Motor side from switch to starter and starter to motor	20Mtr				Mtr	
		Size						
		Make						
		Type						
		Capacity						
		core						
		B. Supply side from meter of HPSEB bus bar & switch						
		Size						
		Make						
		Type						
		Capacity						
		core						

16	Providign and fixing double loop earthing with copper plate 600mmx600mmx3mm thick electrode complete with meterial such as thimbles nuts and bolts charcoal and common call 25mmx5mm copper stops as per IS 3043-1987 with upto date ammendments for motors and other electroial equpments and digging pits etc complete in all respect **copper strip.**		Job				Job	

Terms and conditions:- .

As per Annexure -A attached.

1 The firm shall forward a copy of supply order/ indent placed by it for the supply of pumps and motors on the manufactures/ authorized dealers of the pumps and motors to the consignee within 30 days after the issue of the letter of intent/ award by the Engineer-in-charge. The copy of the supply order/intent to the consignee should also accompany the dealership certificate of the dealer for the pumping machinery in case the pumps and motors are arranged from the authorized dealers.

2 The firm shall arrange dispatch of offered pumps and motors to the consignee direct from the manufacturers/ their authorized dealers of the pumping machinery for which the supply order/ indent has been placed by the firm. The packing slip should indicate the details of materials in the package and material of construction of pumps and motors.

3 The shop test for pumps and motors shall be carried out at manufactures works in the presence of representative of the department as per IS 325-1978. The test performance certificate of the pumping machinery shall be arranged by the firm fro the manufactures and get it approved from the Engineer-in-charge before actual dispatch of the pumping machinery.

4 The firm shall supply the recommended list of spares and quantities required for normal working of the pumping machinery (Two years) from the manufactures of the aforesaid equipment at the time of quoting rates and shall quote items rate for the same also.

5 The firm shall supply the manufacturer's manual for the operation and maintenance of the pumping equipment.

6 The firm shall arrange operation and maintenance training to the operating staff for the pumping machinery (without extra cost) for a period of seven days i.e. during the testing period.

7 The characteristics curves of the pumping equipment shall be supplied with the offer, otherwise, the tender shall be rejected.

8 The firm shall supply layout drawing in respect of various components, such as suction pipes, valves, cable trenches, control panel etc. from the foot valve location to the common header which shall extend up to 5 meters from the outer walls of the pump house towards rising main. The details of foundations required for various components shall also be supplied by the firm within 30 days of the letter of intent/award.

9 The installation of pumping machinery above 100 HP shall be inspected by the technical representative of the manufacturers, of rank not less than that of a service Engineer, at the work site and inspection certificate shall be supplied to the Engineer-in-charge. This inspection shall be in addition to the test report and nothing extra shall be paid on this account.

10 All the civil works shall be constructed by the department.

11 The wiring and installation of electric equipment shall be as per HPSEB rules and regulations and subjected to the approval of the Chief Electrical Inspector and or his authorized officer. Any defect pointed out shall be rectified by the firm without any extra cost. The wiring and installation of all electrical equipment shall be done by a licensed contractor of approved class of HPSEB authorities on their approved format (Form D) for release of power connection by the firm without extra cost.

12 The temporary electric connection, if required during installation shall be arranged by the firm at its own cost and energy charges shall also be paid directly by the firm to the

13 Prices of all items shall be F.O.R site of work inclusive of all leads and shall be inclusive of all charges of transportation, insurance, packing, taxes and duties such as sales tax, excise duty and local taxes etc.

14 The rates shall be quoted only on the format of schedule of quantities which is attached with the tender document giving all specified data so desired therein.

15 The rates offered for the specified makes in the schedule of quantities only shall be considered. Rates quoted for the part or non specified makes shall lead to rejection of the tender.

16 The location of site can be ascertained from the concerned Assistant Engineer & the rates quoted by the firm shall be inclusive of all mechanical and manual transport within all leads and lifts to the site of work.

17 All the equipment/material shall conform to the relevant BIS specifications wherever applicable and in its absence to any accepted National/ International standards.

18 The general specifications of the work shall conform to HP.PWD/Punjab PWD specifications as per direction of the Engineer-in-charge

19 The validity of the tender shall not be less than 90 days, otherwise, the tender shall be summarily rejected.

20 All the equipment shall be guaranteed against any manufacturing defect including metallurgy and its performance for a period of 12 (twelve) months from the date of commissioning / 15(fifteen) months from the date of supply which ever is earlier. Any defect if noticed within the stipulated period shall be rectified by the firm at its own cost within 15 days of bringing the same to its notice. The guarantee clause shall be substantiated by a guarantee bond of a nationalized bank for an amount equal to the cost of pumping and electrical equipment (accessories included) pledged in the name of the Executive Engineer in charge at the time of applying for refund of security deposits. The guarantee bond shall be released after the expiry of the guarantee period.

21 The installed pumping machinery and other allied accessories shall be tested daily for stipulated pumping hours in the N.I.T for a period of seven days without extra cost. However, the cost of electricity and water shall be borne by the department. During the guarantee period efficiency of the pumping and the electric equipment should not vary beyond the range of (+/-) 2.5%. If during guarantee period, the efficiency falls beyond 2.5% to a maximum of 5%, 1% cost of the pump set for 1% fall of the efficiency shall be deducted. In case of fall of efficiency beyond 5% the pump set shall be rejected and cost of the effected pump set recovered from the pledged bank guarantee and or from the security deposit as the case may be.

22 80% (Eighty percent) payment of the cost of pumping machinery and equipment less 10% security and other statutory recovery shall be made after receipt of complete pumping machinery i.e. pump and motors received together at site of work in good condition. The balance 20% cost after deduction of the security and other recoveries shall be released after successful and satisfactory installation, testing of the entire equipment. Ten percent security deposits shall be released as stipulated in the agreement.

23 90% (Ninety percent) installation charges shall be released after satisfactory installation of all the pumping and electrical equipment. Remaining 10% of installation charges shall be released after testing of the entire equipment.

24 1% Labour cess will be deducted on gross amount from each bill besides other deductions such as income Tax, Surcharge on Income Tax **GST as applicable.**

Executive Engineer
IPH Division Baggi.