

Draft Notice Inviting Tender

Estimated cost Rs. 3,75,000/-
Earnest money Rs.7500/-
Time:- Three moths

Name of Work :- Providing LWSS Kaligarh Bara G/O villages Tehsil Chachiot Distt. Mandi (HP)(SH:- Supply and erection of submersible pumping machinery with its allied accessories).

Sr.No	Items of work	Quantity	Rate	Units	Amount.
1	Supply and erection of submersible pumping set BS make Model J 10A/6 stages conforming to latest relevant BIS code. The pump should be fitted with close impellers of bronze/suitable alloy as per BIS 8034-1976 latest suitable for clear cold water having greased packer bearing and shaft with bound stator on motor side & with shaft protection sleeve on pump side ensuring better life for shaft conforming to BIS specifications. The pump shall be directly coupled to a submersible squirrel cage electric induction motor 75 HP of Kirloskar/NGEF/Jyoti/Crompton make conforming to relevant BIS code latest with upto date ammendments totally dust & water proof for submersible duty isolated from the pump by intermediate casing with double mechanical seal in oil chamber & grease packed lubricated bearing & provided with stainless steel thrust bearing plate to withstand non vertical loads with minimum wear & tear. It should also be fitted with a device to take up expansion of water with heating of motor. The pump set should include water level guard errection clamps, cable clips & depth gauge etc. & suitable for operation on data given below:-	2 sets		Per BHP	375000.00

Note:- The pumping set should be match with existing system by providing and fixing increaser/decreaser and eletrical accessoires exists at pump house.

A) SITE CONDITIONS

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|--|---|
| (I) Location of site | Bakhli Khad (Kuklah Patikari) |
| (ii) The altidue of place which the motor is intended to work in ordinary service if it exceeds 1000 mt. | 1000 mtr. |
| (iii) Humidity | Whether generally remains humid during monsoon season |
| (iv)Nature atmosaphere | As normally encountered in Shivalik Range |
| (v)Detail of quality of water | Clear cold water |
| (vi)Water free from sand or not | Yes |
| (vii) water corosive or not | Non corrosive |
| (viii) Turbidity (if any) | Upto 50 PPM |
| (ix) NPSH available | Negative section |
| x) Any other information or requirement | |

(B) OPERATING CONDITIONS

- | | |
|--|--|
| (I) Type of current | AC three/single phase |
| (ii) Operating frequency | 50 HZ |
| (iii) Rated voltage | 400(+)- 10% volts. |
| (iv) System of earthing if any to be adopted | Double loop earthing as per BIS 3043-1987 latest with upto date ammenmdments |

Sr.No	Items of work	Quantity	Rate	Units	Amount.
	(v) No. of working hours per day	8 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 is 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	SPDP(As per BIS 4691-1985 (latest)			
	(iii) Type of duty	Continuous			
	(iv) Mechanical out put in KW	Suitable for driving centrifugal/ reciprocating 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 primer mover			
	(v) Class of insulation	Class- B/Class "F"			
	(vi) Max. permissible temp. rise of motor reqd. if different from given in B (viii) above.	-			
	(vii) Particulars of test reqd. & where they are to be conducted	As per terms and conditions.			
	(viii) Particulars as to whether voltage limiting device will be employed.	ATS/Star delta starter /Stator Rotor starter oil immersed, fully automatic to be installed between bus bar chamber and 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 between 37.5KW to 50 KW & Stator rotor starter with slip ring motor beyond 50 KW			
	(ix) Motor whether squirrel cage or slipring	Squirrel cage/slippering			
	(x) Details of shaft extension reqd.	Just sufficient to provide direct drive by flexible coupling to pump.			

Sr.No	Items of work	Quantity	Rate	Units	Amount.
	(xi) Type of slip ring gear whether continuously rated or for starting purposes only & whether to be fitted with brush lifting or short circuiting arrangements or both if interlocks are required.	Continuously 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 circuit	Breakway torque to be given by the tenderer but the starting current should not exceed 2.5 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.	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 time the rated current for two minutes without suffering damages or permanent deformations.			
D PUMP BIS 1520-1980) Read with BIS 9137-1978 both latest with upto date ammendments					
	(a) Nos. of pumps required	2 No. pump (one will act as standby)			
	(b) Spare parts required	For Two years normal maintenance as recommended by manufacturer.			
	(c) Optional fittings reqd.	Air cock for exhausting air from each stage			
E PUMP OPERATING CONDITIONS					
(I)	Capacity	22.00 LPS (i/c 5% additional water)			
(ii)	Total head in Mts. If total head is not known then following details be provided	51.00mtr.			
(I)	Static head	45 mtrs.			
(ii)	Minimum depth of water				
(iii)	Variation in water level				
(iv)	Ground level to max. water level				
(v)	Ground level to delivery point				
(vi)	Pressure in the suction tank	_____ kg/cm ²			

Sr.No	Items of work	Quantity	Rate	Units	Amount.
(vii)	Pressure in the delivery tank				
	_____ kg/cm ²				
(iii)	Length of R/Main				
	100 Rmt				
iv)	Dia of rising main				
	150 mm dia				
(v)	Drive arrangement				
	Direct through flexible coupling on a common base plate.				
(vi)	Drive type				
	Electric driven				
(vii)	NPSH reqd.				
	To be quoted by tenderer				
(viii)	Limits of total head in which the pump is reqd. to operate				
	(-) 25% 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				
	(b) (+) 10% head				
	(c) (-) 15% head				
(xi)	Material of construction				
	To be specified by the tenderer.				
	(Manufacturers certificate to be appended)				
2	Supply of suitable oil immersed star delta starter/ATS/Stator rotor starter of standard make such as MEI/Kilburn/Jyoti/Siemens conforming to BIS-8544-1979 latest with upto 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 starter rotor starter with slipring motor beyond 50 KW.	2 Nos.		Each	
3	Providing MS sheet 16 SWG steel fabricated floor mounted closed almira type switch board including angle iron post of suitable height and size ISA 40x40x6mm duly painted comprising and capable of mounting the following accessories with all internal electric connections. The drawing of panel board shall be subject to approval of Engineer-in-charge.	1 No.		Each	
	(a) Ammeter AC supply 100mm circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 1248-1983 latest with upto date ammendments.	2 Nos.		Each	
	(b) Voltmeter AC supply 100mm circular dial Auto electric/AE/IMP/Havells make of suitable range for above motor with selector switches conforming to BIS 4064-1978 latest with upto date ammendments.	1 No.		Each	
	(c) ICTP switches with HRC fuses Kilburn/Larsen & Turbo/Standard/Siemens/Havells make and having capacity 30% extra of the operational rating of motor as per BIS- 4064-1978 with upto date ammendments immediately after the power meter of HPSEB	2 Sets		per set	
	(d) Busbar chamber having 3 copper bars 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.	1 No.		Each	

Sr.No	Items of work	Quantity	Rate	Units	Amount.
	(e) MCB/Oil circuit breaker of suitable capacity of Kilburn/LT/LK/MEI/Standard make on in common feeder for motors offered by the tendere conforming to BIS 2516-1985 latest with upto date ammendments with neutral linked under voltage release.	1 No.		Each	
	(f) 3 phase indicating lamps complete with toggle switches for individual motors conforming to BIS-3452 part-I & II latest with upto date ammendments.	2 Nos.		Each	
	(g) Earth leakage circuit breaker of recommended (Kilburn/L&T/MET/GEC as per BIS- 2516-1977 with upto date ammendments and of suitable range which should have control box, operating handle and trip/reset bush 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 occurance of earth fault on/off breaker load side.	1 No.		Each	
	(h) Hour run meter of reputed make of four digit capacity conforming to BIS-722 (latest edition) recommendations.	2 Nos.		Each	
	(i) Suitable three phase voltage monitor relay with all protections & usual indicators with electrical sirens against single phasing no voltage, high voltage & over loading & phase voltage differenece.	1 No.		Each	
	(j)Change over switch of reputed make and suitable capacity	1 No.		Each	
	(k) Single phase preventor of reputed make & suitable capacity	1 No.		Each	
4(a)	Supply of Kirloskar/Kilburn/IVC/Fouress/Gled/BHEL/Leader/Kartar of reputed make of suitable size cast iron Class PN-1 double flanged sluice valve having size equal to delivery of pump and capable of withstanding nominal seat pressure of 10 kg/cm ² Note:- The sluice valve shall conform to BIS 780-1984 latest with upto date ammendments. However if the seat pressure exceeds the limits prescribed in BIS 780 then the sluice valves shall be of cast steel conforming to class 150 ASA (Seat pressure 21kg/cm²) or class 300 ASA (Seat pressure 52 kg/cm²)as per BS 1414 (API 600) class 600 ASA (Seat pressure 120kg/cm²) Kartar make is only for Cast Iron valves)	2 Nos.		Each	
(b)	Supply of Kirloskar/Kilburn/IVC/Fourcess/Gled/BHEL/Leader/Kartar make of suitable size cast iron class PN-1 double flanged swing check type reflux valve having bye pass arrangement & size equal to dia of rising main 150mm dia for withstanding nominal seat pressure of 10 kg./cm ² . Note:- The Reflux valve shall conform to BIS 5312-1984 latest with upto date ammendments. However if the seat pressure exceeds the limits prescribed in BIS 5312 then the sluice valves shall be of cast steel conforming to class 150 ASA (Seat pressure 21kg/cm²) or class 300 ASA (Seat pressure 52 kg/cm²) or class 600 ASA (Seat pressure 104 kg/cm²) as per BS 1414 (API 600)	1 No.		Each	
5(a)	P/L suitable size copper PVC insulated armoured power 3.5 core cable conforming to BIS 1554 (part I) 1988 or latest with upto date ammendments Siemen/Gloster/ICC make from meter of HPSEB to OCB & from OCB to Busbar switch & starter (one cable carrying all three phases) including all other electrical equipment/accessories such as thimbles, flexible pipe, solder, nuts and bolts, cable glands etc. laid in pipes or trenches under floor. The type, size & 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.	1 Job		LS	

Sr.No	Items of work	Quantity	Rate	Units	Amount.
(b)	Providing and laying jointless flat water proof cable as per BIS 694-1990(latest with upto date ammendments) suitable for the pump set offered from OCB to motor, motor to starter including all other electircal equipments such as Thimbles, flexible pipes, solder, nuts & bolts cable glands etc. laid in pipes or trenches. The type, size & make will be subject to approval of HPSEB authorities. In case of non-acceptance by HPSEB authorities it shall have to be replacer free of cost.	1 Job		Per job	
(c)	P/L double loop earthing with GI plate 600x600x3mm thick electrode complete with material such as charcoal, common salt, GI pipes, thimbles, nuts & bolts, digging of pits, GI wiring & 25x5mm GI strips of required capacity conforming to BIS 3043-1987 latest with upto date ammendments for above motors & other electrical equipment.	1 Job.		L.S	
(d)	Supply & erection of floor/wall mounted power factor shunt capacitor conforming to BIS 2834- 1986 latest with upto date ammendments BHEL/GEC/Machneil/Mager/Bajaj make to raise the prevailing power factor at site to 0.95 for direct connection to inductiion motor individually of required KVAR according to HP of motor offered including cable Siemens/Gloster/ICC make from busbar chamber to capacitor & also including LT/LK/Kilburn make ICTP switches conforming to BIS 4064-1978 or latest with HRC fuses (Range to be specified by the tenderer.	1 No.		Each	
6	Supply of standard make 100mm dia circular dial pressure gauge of suitable range Fiebeg/Bourden/ Precision make with all accessories such as stop cock, copper tubing etc. conforming to BIS-3624-1987 latest with upto date ammendments	2 Nos.		Each	
7	P/L MSERW /GI delivery pipe, suction pipe considering site requirements, NPSH required and available & common header having area equal to two times the area of delivery branch of pump including tappers, flanges, rubber gaskets, less than 3mm thick as per BIS-2712-1978, nuts and bolts as per 1364-1983 & special upto Sump well as per layout drawings approved by the Engineer-in-charge. The pipes shall be capable of withstanding 1.5 times the total pressure indicated in item No. 1 E(ii)	1 Job		Per job	
Note:- Actual laying to be done as per final drawings to be approved by the Engineer-in-charge.					
8	Errection of all equipments from Sr. No.1 to 4 & 6 including cost of tees, bends, tapers & any other fittings required as per site conditions & as per direction of Engineer-in-charge.	1 Job		L.S.	

Total	375000.00
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Terms and conditions attached separately.

Executive Engineer
I&PH Division
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