

SCHEDULE OF QUANTITY								
Name of work:- A/R & M/O LWSS Bag Bamot in GP Pahal Tehsil Sunni Distt. Shimla HP.				Estimated cost Rs . 112500/-				
(SH:- Supplying & Errection of Centrifugal/ Reciprocaty Pumming Machinery with allied accessories for Ist				Earnest money Rs .2500/-				
S.No.	Description of items.	Specifications	Quantity		Rate in Rs		Unit.	Amount
			In Nos.	Figures.	Words.			
1	Providing horizontal spindle horizontal/radial split casing/end (back pull out arrangement) single/double/multistages centrifugal pump / reciprocating pumps , in series / parallel of recomended make such as Mather & platt./ Becon weir /KSB / Kislosker /BE / Jyoti WASP / ASPEE as per BIS-1520-1980 with upto date ammendments, read with or latest additions suitable for lifting clear water for under men characteristics with bronze impellers/priming funnels casing ring shaft sleeves of bronze, shaft of steel grade- with cast iron casing coupled directly through a flexible coupling on a common steel base plate(base plate to be from the manufacturers of the pumping unit only) to Slip/Ring/ Squarrel cage screen protected drip proof induction motor of standard make such as Kirloksar/Crompton/Bhel/ NGEF/GEC/SIEMEN/ JAYOTI/ABB suitable for operation on 415(+/-) 5% volts, 50 cycles/second, 3 phase AC electric supply. The power of electric motor should be atleast 10% in excess of the maximum power required by the pump in the opeation range of (+)10% and(-) 25 % of the duty point head. The motor should be as per IS: 325-1978 with upto date ammendments read with IS 900-1972. It should include cost of bearing nuts, bolts & pointing etc. and should meet the following requirements:-		1 Set	15 HP.			Per /HP	
1.1	(l) Discharge (Q) 5.70 m3/ hr/set. (ii) Total Dynamic Head: 565 Meters. (a) LWL in sump well(h) : Meters.(b)_ Shaft level :- Meters. © Level at discharge point : Meters.(d) Suction lift :- 3 Meters. (e) Residual head:- 3.00 Meters. (f) Static head:- 495.00 Meters. (iii) Rising main (a) Length. 2045 Meters. (b) Dia :- 50 mm. (iv) Pumping hours. 8 hours. (v) Altitude of Installation above MSL - Meters. (vi) Characteristics of water (a) Temperature oC (b) Abient Temperature oC © Turbidity Clear water JTU (d) Alkalinity Mg/CA CO3 (e) Size of the solids. Mm. (f) Other	(l) Head(H). (b) Motors l) Make ii) Model iii) Motor rating (KW). iv) Speed.(ii)Discharge (Q) (iii)BHP absorbed (iv)Efficiency(n) (v) NPSH(K) (v) Insulation ©	1	No			Each	
1.2		(c.) Coupling]	1	No			Each	
1.3		(d) Base Plate]	1	No			Each	
2	Providing Change over switch of Kilburn/L&T/Siemens/Crompton/ 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 meter of HPSEB all internal connections:	ICTP SWITCHES (i) Make (ii) Type (iii) Capacity	1	No			Each	
3	Providing MS .sheet,steel fabricated floor mounted closed(Almirah type) switch board including angle iron post of suitable height and size ISA 40x40x6mm,duly painted, with steel sheet of 16 gauge comprising, capable of mounting the following accessories with	Panel/Switch Board (l) Drawing (ii) Layout plan	1	No			Each.	
3.1	A.C.B./Oil circuit breaker of Kilburn/L&T/MEI/GEC make & of suitable capacity on incoming feeder with or without oil filling as the case may be with neutral linked under voltageinitial releases as per IS: 2516-1985 with upto date ammendments with	A.C.B./O.C.B (l) Make (ii) Type (iii) Range iv) Capacity	1	No			Each	
3.2	Earth leakage circuit breaker of recommended make (Kilburn/L&T/MEI/ GEC) as per 2516-1977 with upto date ammendment and of suitable range which should have control box operating handle and trip/reset bush button on/off indicators, re-indicating off spring conditionof the circuit breaker for over current protection. The circuit shouldshould also be fitted with earth fault for tripping of breaker on occurrence of earth fault on off breaker load side end.	E.L.C.B.I)Make(ii) Type(iii) Range...	1	No			Each	
3.3	The voltage monitor relay three phase with all protection and usual indicator and electric siren against single phasing low voltage,high voltagereverse phasing,over loading and phase voltage difference as per IS:3842(latest edition).	VOLTAGE MONITO RRELAY. (l) Make (ii)Type (iii) Range	1	No			Each	
3.4	100mm diameter circular dia A.C. Supply voltmeter of recommended makeAE/IMP/ Havells of suitable range with selector switches as per IS:4064-1978 with upto date ammendments.	VOLT METER (l) Type (ii)Make (iii)Range...	1	No			Each	
3.5	Power factor meter of standard make as per relevant IS code with uptoPower factor meter of standard make as per relevant IS code with uptoPower factor meter of standard make as per relevant IS code with upto	POWER FACTORMETER (l)Type (ii) Make	1	No				
3.6	Frequency meter of standard make as per relevant IS code with upto dateammendments of suitable rating.	FREQUENCY METER (i) Type (ii) Make (iii)Range.	1	No			Each	
3.7	Bus bar chamber having three bars of suitablerating for full length equal to the width of the board for three liverating of full length for neutral phase as per IS:8084-1976 and IS:11353-1985 read with BIS 5578-1985 with upto date ammendments	BUS BAR CHAMBER (l) Type (ii) Make (iii) Rating...	1	No			Set	
3.8	ICTP switches with HRC fuses of L&T/Crompton/Kilburn/Siemens/standard/Havells make and of suitable capacity as per IS 4064-1978 with upto dateammendments.	ICTP SWITCHES(l) Type(ii) Make(iii)_Capacity	1	No			Set.	
3.9	Three phase Indicator lamps complete with toggle switches for individual motors as per IS 3452(P-I&I) with upto date ammendments.	THREE PHASEINDICATOR (l) Type (ii) Make (iii) Capacity	1	No			Set.	

3.10	100mm dia circular dial AC supply Ammeter of AE/IMP/Havells make of suitable range with selector switches and CTS operated as per IS:1248(P-II) 1983 with upto date amendments...	A METER (i) Type (ii) Make (iii) Range	1 No			Each	
3.11	Capacitor of Mechneil/Bhel/GEC/ L&T/ make as per IS:2834-1986 with upto date amendments to raise the power factor at site to 0.95 for direct connections to induction motor individually of required KVA rating according to HP offered including cables as per relevant ISI code (of Siemens/Glocter/IEC make) from bus chamber to capacitor and also including ICTP switches of appropriate range as per IS: 4064-1978 with upto date amendments.	CAPACITOR (i) Type (ii) Make (iii) Range...	1 No			Each	
3.12	Providing suitable Oil immersed star delta/direct on line /auto -tran former/starter rotor starter of MEI/Kilburn/Jyoti/L&T/Siemens make as per IS 8544-1979 with upto date amendments for squirrel cage/slip ring motor mounted on panel board with magnetic type overload release and dashpot, time lag, under voltage release with or without initial oil filling as the case may be with single phase preventor as per IS 1248(P-V)- 1983 with upto date amendments.	STARTER (i) Type (ii) Make SINGLE	1 No			Each	
3.13		PHASE PREVENTOR (i) Type (ii) Make	1 No			Each	
3.14	Providing Hour run meter of recommended make of suitable capacity as per IS:722(Latest edition).	HOUR RUN METER (i) Type (ii) Make (iii) Capacity	1 No			Each	
4	Prov. Antivibration pads under the pumps and motors of suitable size for the above pumping machinery as per IS; 6337-1971	Antivibration Pad; (i) Size (ii) Make (iii) Material	1 No			Each.	
5	Prov. Cast iron flanged/screw type foot valves with strainer as per IS: 4098-1986 with upto date amendments of Kirloskar/ as per IS: 4098-1986 with upto date amendments of Kirloskar/ mechneil/ kilburn / leader make 65 mm dia.	FOOT VALVE (i) Make (ii) Class (iii) Test working head (iv) Material	1 No			Each	
6	Providing cast Iron sluice valve of Leader/Kirloskar/Kilburn/Kartar make of 50 mm dia. for the suction side of pump.	SLUICE VALVE (i) Make (ii) Class (iii) Seat pressure (iv) Material	2 No			Each	
7	Providing double flanged cast steel sluice valve of Leader/Bhel/Kirloskar/Kilburn/GLED/Fouress make and of 40 mm dia. for the delivery line of pump and capable of with standing the normal seat pressure and as per BS-1414 with upto date amendments.	SLUICE VALVE (i) Make (ii) Class (iii) Seat pressure (iv) Material	1 No			Each	
8	Providing double flanged (Swing type) cast steel reflux valve of Leader/Bhel/Kirloskar/Kilburn/GLED/Fouress make and of 40 mm dia. having bye pass arrangement on the delivery line of pump and capable of with standing the normal seat pressure and as per BS-1868 (P-1) with upto date amendments.	REFLUX VALVE (i) Make (ii) Class (iii) Seat pressure (iv) Material	1 No			Each	
9	Providing double flanged Cast steel Reflux valve of Leader/Bhel/Kirloskar/Kilburn/GLED/Fouress/Kartar make and of 50 mm dia having bye pass arrangement for Rising Main and capable of with standing normal seat pressure as per BS:1868 (P.I) with upto date amendments.	REFLUX VALVE (i) Make (ii) Class (iii) Seat pressure (iv) Material.	1 No			Each.	
10	Providing 100mm dia circular dia pressure gauge of Fiebing/Bourden Prega/precision make complete with all accessories such as stop cock, copper tubing etc. as per IS 3624-1987 with upto date amendments.	PRESSURE GAUGE (i) Make (ii) Range	1 No			Each	
11	Providing 100mm dia circular dia vaccume gauge of Fiebing/Bourden/Prega/Precision make complete with all accessories such as stop cock, copper tubing etc. as per IS 3624-1987 with upto date amendments	VACCUME GAUGE (i) Make (ii) Range:	1 No			Each	
12	Prov. discharge meter standard make to be tiked 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 amendments.	Discharge Meter (i) Make (ii) Type (iii) Range	1 No			Each.	
13	Installation of all the items appearing at Serial No. 1 to 12... as per the systematic drawing attached with the tender documents (Drg. No.1).		1			Job.	
14	Providing and fixing double flanged MS piping work layout to be approved by the Engineer-in-Charge for suction and delivery pipes suitable to pump(s) offered and common header as per the rising main respectively complete with all specials such as bends, tees, reducers/increasers with companion flanges matching with the relevant specifications of the accessories as indicated in the drawing No 2 including rubber/asbestos gasket of minimum 3mm thickness as per IS 2712-1979 and required number of nuts and bolts as per IS 1364-1983. The pipes shall be as per relevant IS code and to withstand 1.5 times total head stipulated under item No.1. The size of the various components to be as under:- (i) Suction pipe... 50.. mm dia (ii) Delivery pipe... 40 mm dia. (iii) Common Header 50 mm dia. and will extend upto 5 mtrs from the outer wall of the pump	SUCTION PIPE (i) Make (ii) Grade (iii) Thickness (iv) Pressure rating.	1			Job.	
14.1		DELIVERY PIPE AND COMMON HEADER (material) (ii) Grade (iii) Thickness (iv) Pressure rating.	1			Job.	

15	Providing and laying copper PVC insulated armoured powercable(one cable carrying all the three phases)of suitable sizeand capacity to and all other electrical equipments as per IS:1554(P-I)1988 or latest with upto date ammendments of Siemens//Gloster/ JEC/ICC/EICO National/Grandlay make including all otheraccessores such as thimbles, flexible,pipes solder,nuts and bolts,accessores such as thimbles, flexible,pipes solder,nuts and bolts,	ARMOURED POWERCABLE(A) Motor side(fromswitch to starter andstarter to motor.)(I)Size (ii)Make(iii)Type(iv) Capacity(v) Core.(B)SUPPLY SIDE(FROM METER OFHPSEB TO BUS BAR AND SWITCH) (I) Size(ii) Make(iii)Type(iv) Capacity(iv)Core.	1			Job.
16	Providing and fixing double loop earthing with GI Wire and GI plate 600mmx 600mmx 3mm thick electrode complete with material suchas thimbles, nuts and bolts,charcoal and common salt,25mmx3mm copper strips/as per IS: 3043-1987 with upto date ammendments for motors and other electrical equipments and digging of pits etc.,complete in all respect.		1			Job
					Total:-	

TERMS AND CONDITIONS

1	The work will be executed as per PWD/IPH specification and as per the direction of the Engineer-in-Charge.
2	10% Security will be deducted from each bill.
3	GST, & sale tax will be deducted as per relevent clause of NIT. .
4	Payment will be made after satisfaction of the Engineer-in-Charge as per the billing schedule attached and as per the relvent clause on receipt of bill from contractor.
5	The material shall be issued for bonafied use at allotted to the contractor.
6	The site shall be inspected by the tenderer before his offer.
7	The offer shall be including all transportation charges upto site of work.
8	The offer shall comply with technical specification and shall conform to specified standard nominal bore outer diameter, wall thickness Wt.per Mtrs. etc. shall clearly given.
9	The pipes shall under go a mile test pressure and tensile test at manufactures work as per standard and a certificate to this effect shall be provided by the tenderers before
10	The hydraulic test pressure after laying shall not be less than 1.5 times the actual working pressure.
11	The entire pipe line before actual commissioning shall be thoroughly disinfected and fleshed in accordance with standard practice.
12	The validity of the offer shall remain open for a period of 120 days from the opening date of tender.
15	5% payment (amount) will be released after testing of Pumping Machinery .
16	The contractor / firm must have experience to execute the similar nature of work i.e P/L of R/Main & civil works & P/Machinery .
17	The firm shall forward a copy of supply order/indent placed by it for the supply of pumps and motors on the manufacturers/authorised dealer of the pumps and motors to
18	The firm shall arrange despatch of offered pumps and motors to the consignee direct from the manufacturers/ their authorised dealer of the pumping machinery for which
19	The shop test for the pumps and motors shall be carried out at manufacturer's works in the presence of respresentative of the department as per IS:325-1978. The test
20	Those contractors/ firm who are exempted from depositing earnest money at the time of tendering shall have to deposit the same in prescribed shape with Executive
21	The firm shall supply the recommended list of spares and quantities required for normal working of pumping machinery(2 years) from the manufacturers of the aforesaid
22	The firm shall supply the manufacturer's manuals for the operation and maintenance of the pumping equipment.
23	The firm shall arrange operation and maintenance training to the operating staff for the pumping machinery without extra cost for a period of 7 days i.e.during the testing
24	The characteristics curvces of the pumpjng equipment shall be supplied with the offer otherwise the tendershall be rejected.
25	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
26	The work pressure certificate and manufacturing certificate from the manufacturing will be supplied regarding MSERW pipe as per IS/150-3183--2007.
27	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
28	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
29	The temporary electrical connection, if required during installation shall be arranged by the firm at its own cost and energy charges shall also be paid by the firm. Prices of
30	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.
31	The rates offered for the specified makes in the schedule of quantities only shall be considered. Rates quoted for part and or non specified makes shall lead to rejection of
32	The site of work is located at Shimla Khad on Shimla Pahal road via Banuti 35 Km from Shimla .The site is mechanical and manual transport within all leads and lifts.
33	All the the equipment/material shall confirm to the relevant IS specifications wherever applicable, and in its absence to any accepted National/Internationals standards.
34	The general specifications of work shall conform to Punjab P.W.D/HPPWD. Specifications per direction of the Engineer-in-charge.
35	All the equipment shall be guaranteed against any manufacturing defect including metallurgy and its performance for a period of 12(tweleve) months from the date of
36	The installed pumping machinery and other allied accessories shall be tested daily for stipuated pumping hours in the NIT for a period of seven days without extra cost.
37	During the guarantee period efficiency of the pumping and electric equipment should not vary beyond the range of (+/-)2.5%. If during guarantee period, the efficiency falls
38	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

**Executive Engineer,
I&PH.Division Suni,
Distt.Shimla.**