



नवमंगलूरपत्तनप्राधिकरण  
**NEW MANGALORE PORT AUTHORITY**  
यांत्रिक अभियंता विभाग  
**Mechanical Engineering Department**  
इलेक्ट्रिकल इंजिनियरिंग डिविजन, पणंबूर, मंगलूर  
**Electrical Engineering Division**  
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No.8/3/2025/Ele. Dvn/EQ/06/02

Date: 18.06.2025

To,

Sir,

Sub: -NMPA-EE (E) - "Third Party Inspection for Pumpsets & Motors and allied works" - Quotation invited - Reg.

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NMPA intends to engage third party inspection agency for Pumpset & Motors and allied works at NMPA.


Quotation in sealed cover superscribed as "Third Party Inspection for Pumpset & Motors and allied works" addressed to **The Executive Engineer (Elec.), Electrical Division, Administration Building, New Mangalore Port Authority, Panambur, Mangalore- 575010** are invited for the following items in accordance with the instructions to the Tenderer, Terms & Conditions as detailed below, which may please be submitted not later than **3.00 PM on or before 25.06.2025**. Quotations will be opened on the same day at 3.30 PM in the presence of the tenderers who wish to be present.

Sl. No.	Description of Work	Qty.	Rate (Rs.)	Rate in Figures	Amount (Rs.)
1	Inspection for Pumpsets & Motors and allied works (As per Scope of Work & approved Technical Specifications)	Lumpsum			
	Total				
	Applicable GST				
	Grand Total				

### **TERMS & CONDITIONS:**

- 1) The firm shall have a valid Authorization certificate for carrying out the inspection. i.e, NABCB or equivalent. Copy of the certificate shall be enclosed along with the offer, failing which the offer shall be liable for rejection.
- 2) TPI shall carryout the inspection of materials at NMPA, Mangalore.
- 3) Applicable GST will be paid extra as per actual. GST Registration Certificate shall be submitted along with the offer.
- 4) The scope of work is as per Technical Specification (Annexure-I), relevant standards, drawings, QAP, Type Test report, etc.
  - Inspection of pumpsets and motors
  - Verification of material specifications and standards
  - Witnessing of performance tests
- 5) The offer rate shall be inclusive of travel expenses, lodging and boarding and other incidental charges etc.
- 6) All necessary facilities for inspection (instruments, test instruments, drawings etc) shall be arranged by the contractor /manufacturer.
- 7) After inspection, the TPI Agency shall submit the inspection report to NMPA, TPI agency shall give the dispatch clearance to the manufacturer/Contractor to deliver the inspected items to the site at NMPA.
- 8) Inspection call to your office will be given in advance, two days prior to the date of inspection.
- 9) Income tax /Statutory taxes as applicable, will be deducted at source while releasing the payment.
- 10) Payment terms
  - (a) TPI shall submit the invoice along with the complete inspection report.
  - (b) 100% payment will be made within 15 days from the date of receipt of invoice along with the report.

Encl: Technical Specifications

  
Executive Engineer (E)  
Electrical Division, NMPA

Seal and sign of Tenderer



**Annexure - I****TECHNICAL SPECIFICATIONS**

Item No.	DESCRIPTION OF ITEM	QTY	UNIT
1	<b>PUMP</b> : Supply & delivery at site brand new, best efficient approved brand and make Horizontal split case centrifugal pump confirming to the latest ISS 1520 & 5120 with one year warranty with following description: a) Duty condition: Capable of delivering 225m <sup>3</sup> /hr with total head of 60 mtrs including suction. b) Speed: Duty condition should be met at 1500 RPM with 75 HP driving force. c) Shut off head: Min 110% & Max 130% of the specified head. d) Material of construction: i. Casing and bearing housing: Cast Iron ii. Impeller- CF8M iii. Shaft- SS410 iv. Stuffing Box- Graphite Asbestos packing v. Wear / neck ring - CF8M vi. Gland Cast Iron vii. Shaft sleeve & nuts - SS410 e) Driving end bearing: Grease lubricated roller/ ball/ journal bearing. f) Non driving end bearing: Grease lubricated deep groove ball bearing as well as journal bearing or deep groove ball bearing only.	3	Nos
2	<b>COUPLING</b> : Supply and fixing of suitable size vibration proof flexible coupling, pinbush type with coupling guard, as recommended by the manufacturer of pump, for coupling to motor	3	Nos
3	<b>BASE PLATE &amp; CC FOUNDATION</b> : Providing and fixing / construction of Heavy-duty common CI/ MS base plate for pump and motor with suitable 'I' section girders, channels, plates, bolts & nuts etc including Civil works and CC Bed foundation work with suitable length and size Steel etc., complete as according to the directions of the Engineer-in- charge.	3	Nos
4	<b>MOTOR</b> : Supply and delivery at site 75 HP / 55 KW approved make / brand, Horizontal Foot Mounted TEFC, Squirrel cage induction 1440 RPM motor for continuous duty conforming to IS12615 with efficiency IE3 for operation on 3 ph, 50 Hz. 440 volts with three years warranty a) Protection: IP 55 b) Insulation : 'F' Class with dual coated copper and Vacuum Pressure impregnation c) Ambient temperature: (-)20°to 45°C d) Driving end bearing: Grease lubricated insulated ball bearing. e) Non driving end bearing: Grease lubricated insulated ball bearing Cushion: 10% more than maximum power required by the pump and capable of providing rated output up to (+) or (-) 10% voltage variation and + or - 5% frequency variation or combination of both	3	Nos
5	<b>SLUICE VALVE</b> : Supplying, delivery & fixing at site brand new approved make/brand, Class 150 rising Spindle Gate valve / Sluice Valve with working pressure rating minimum of 25Kg /cm <sup>2</sup> with the following requirements: Body: Cast Steel/ Ductile, WCB bonnet with Yoke, Wedge, Gland, Handwheel etc.,. MOC should be Cast Steel , ASTM 216 Grade - WCB,	3	Nos



	Wedge seat and body seat made up of 13% carbon steel and Stem-Stainless Steel, Sleeve Bush , Handwheel lock nut, Yoke sleeve retaining nut made up of stainless steel and gland packing flexible graphited with manufacturing standard API : 600. 150mm dia		
6	<b>CHECK VALVE/ NON RETURN VALVE</b> : Supplying , delivery & fixing at site brand new approved make /brand Class 150 swing type double flanged Single door Cast Carbon Steel/ Ductile Check Valve with manufacturing standard VS 1868 pressure rating minimum of 25Kg /cm <sup>2</sup> with the following requirements: Body, Top Cover , Disk, Hinge made up of Cast Carbon Steel ASTM 216 Grade - WCB and body seat ring disk, seat ring are 13% Carbon Stainless steel with Hinge Pin , Disk Lock Nut, Air Plug and End Plug made up of stainless steel . 150mm dia	3	Nos
7	<b>PRESSURE GAUGE</b> : Supply and fixing of approved brand and make, stainless steel glycerine filled pressure guage of 150mm dia suitable for the above pumpsets with nipple, stop cock & two-way cock for cleaning with neccessary length of copper tubing suitable for mounting on the delivery side of pump.	3	Nos
8	<b>SUCTION MANIFOLD</b> : Supply and erecting at site Double flanged MS Suction manifold suitable for suction side of the pump including cutting, welding and the flanges should be suitable for the suction side pipeline.	3	Nos
9	<b>SUCTION PIPELINE</b> : Supply and laying suction pipe line at site with suitable dia and 6mm thickness MS pipe with suitable size and type MS Flanges including expander/ Reducer and welding cutting to the main suction manifold etc., complete as according to the suction pipeline theory and practice etc., complete as according to the Engineer-in-charge	3	Nos
10	<b>DELIVERY EXPANDER</b> : Supply and fixing of double flanged MS Expander suitable for delivery pipeline size of the pump including cutting, welding with required size and type MS Flanges to connect the delivery pipeline etc., complete as according to the directions of the Engineer-in-charge	3	Nos
11	<b>DELIVERY PIPE</b> : Supply and laying delivery pipe line at site with suitable dia and 6mm thickness MS pipe with suitable size and type MS Flanges including expander/ Reducer and welding cutting to the main delivery manifold etc., complete as according to the delivery pipeline theory and practice etc., complete as according to the Engineer-in-charge.	3	Nos
12	<b>FCMA BASED SOFT STARTER</b> : Supply & delivery of 75 HP soft starter based on Flux compensated magnetic amplifier technology of approved brand and make for smooth starting by torque control and reduction in starting current etc. 75 HP FCMA Starter comprises of the following: <ul style="list-style-type: none"> <li>• 1 no., of approved make / brand 300 amps 3 Pole Contactor for run</li> <li>• 1no- approved make/ brand 185 Amps 3 Pole Contactor for start</li> <li>• 1 No. approved make/brand Reactor for 75 HP</li> <li>• 3 nos approved make / brand RYB Phase Indicating Lamps,</li> <li>• 1 No., approved make/ brand 0-600V Digital Voltmeter,</li> <li>• 1 No. approved brand/ make 0-150A Digital Ammeter,</li> <li>• 6 Nos approved make / brand 150/5A Current Transformer ,</li> <li>• 1 no. approved make / brand Ammeter,</li> <li>• 1 no approved make/ brand 500/5A Current Transformer,</li> <li>• 1 No. approved make Mini Motor Protection Relay,</li> <li>• 1 no. approved make / brand Under Voltage/ Over Voltage Relay,</li> <li>• 1 no. approved make / brand 500VA Control Transformer,</li> <li>• 1 set approved make / brand Control MCB,</li> <li>• 3 nos approved make / brand ON delay Timer,</li> </ul>	3	Nos



- 1 no. approved make / brand Electronic Hooter,
- 1 set of 400 Amps Aluminium Busbar of size 1Rx30x10,
- 1 no. approved make / brand 125 Amps Switch Fuse Unit for capacitor bank
- 1 no., approved make/ brand 80 Amps 3P Power Contactor for capacitor bank
- 3 nos approved make / brand Push Button Switches (Stop/ Start & Reset)
- 1 No. approved make / brand Earth Leakage Relay
- 5 nos approved make / brand Aux Contactors 2 No+NC
- 1 no. approved make / brand Thermostat
- 1 no. approved make / brand Selector Switch
- 1no. approved make / brand Digital Status Relay
- 1 no. approved make / brand Analog Ammeter
- 1 no. approved make / brand Power Factor Meter
- 1 no. approved make / brand Phase Failure Relay with Dry Run Preventor

**NOTE:**

1. The starter panel shall be fabricated using 16 SWG sheet, steel flats and suitable size angle iron.
2. All copper joints shall be electrotinned.
3. The control wiring shall be done using 1100 volts grade adequate size multicore copper cable of approved make /brand.
4. All the control wiring shall be properly ferruled.
5. The circuit shall be designed for close transition using KORNDORFER Principle and should ensure smooth change over from top voltage to the full voltage without any momentary interruption in power supply to the motor.
6. The starter panel is required for installation at an altitude not exceeding 0 m above MSL and the maximum ambient air temperature of 45°C.
7. The panel shall be designed to conform to the requirement of the latest IS 8623, factory-built assembly of switch gears and control gears.
8. The inter connections shall be done using adequate size insulated electrolytic copper strip and copper cable.
9. The Starter shall be suitable for Six starts per hour.
10. The FCMA unit should be Air cooled.
11. The FCMA soft starter shall be dust and vermin proof and suitable for indoor mounting with coating
12. The erection of Soft Starter Assembly shall be done by using necessary size CC foundation with materials, labour etc. complete.

13	<b>POWER SHUNT CAPACITOR:</b> Supply and fixing site brand new approved make/brand low loss high efficient 30KVAR Power Shunt Capacitors confirming to IS 2834 / suitable for operation on 3 ph 50 Hz 380/440 volts AC supply required for maintaining the power factor of the installation of the at not less than 0.95 lagging. a) the capacitor shall be provided with a suitable discharge device to reduce the voltage between the terminal to allowable level within one minute. b) terminal covers on the units and banks	3	Nos
14	<b>LOAD SIDE CABLE:</b> Supply & laying at site approved make /brand Copper cable to connect FCMA Starter and Motor single core 95 sqmm including required size dia conduit pipe.	3	Job



15	<p><b>ERECTION OF MOTOR &amp; PUMPSET:</b> Formation of suitable block machine foundation in RCC 1:2:4 conforming to the latest ISS 2974 / using all the required materials such as cement, sand, Coarse aggregate etc., complete including necessary earth work excavation, refilling curing etc., complete. Erection of the pumpset mounted on the common base plate on the above foundation using the required materials such as foundation bolts, key locks, self inter locking bolts, washers etc., complete. Leveling, aligning of the pumpsets on the foundation. Grounding and dynamic balancing of the pumpset using all the required materials including adequate size multicore copper cable of approved make / brand. All the control wiring shall be properly ferruled. The circuit shall be designed for close transaction using KORNDORDEER Principle and should ensure smooth change dewatering, construction of pump pit etc., including erection of Auto Transformer starter complete. Dismantling of existing Pumpset including lifting of Motor, pump upper casing, lower casing rotating elements, base plates etc., complete including disconnecting suction pipeline, delivery pipe to provide the new pumpset including necessary work required complete.</p>	3	Nos
16	<p><b>ERECTION OF SOFT STARTER:</b> On CC foundation including formation of CC foundation using all the required materials such as cement, Coarse aggregate etc., complete using required materials such as MS Channel bolts, nuts, washers etc., complete.</p>	3	Nos
17	<p><b>CABLE TERMINATION:</b> Laying of cable inside the pump house and termination of cable using copper lugs to the terminal end for solder crimping to copper conductors by adopting crimping tool.</p>	3	Job
18	<p><b>LAYING AND JOINTING OF MS PIPES AND SPECIALS:</b> For suction and delivery connections of the pumps using suitable size bolts nuts, packing etc., complete including fixing, all types of valves, guages, strainers, delivery and suction manifold. The work shall include providing pipe supports, thrusts block in CC 1:2:4 prop, wherever necessary upto the end of the delivery manifold using all the required materials such as sand, cement, Coarse aggregate including making holes in sump, pump house for laying suction and delivery pipes packing of holes with CC 1: 2: 4 etc. complete.</p>	3	Nos
19	<p><b>PUMP :</b> Supply &amp; delivery at site brand new, best efficient approved brand/ make Horizontal split case centrifugal pump confirming to the latest ISS 1520 &amp; 5120 and the following description:</p> <ol style="list-style-type: none"> <li>Duty condition: Capable of delivering 180m<sup>3</sup>/hr @ total head of 35 mtrs including suction.</li> <li>Speed: Duty condition should be met at 1480 RPM with 40 HP driving force.</li> <li>Shut off head: Min 110% &amp; Max 130% of the specified head.</li> <li>Material of construction: <ol style="list-style-type: none"> <li>Casing and bearing housing: Cast Iron</li> <li>Impeller- CF8M</li> <li>Shaft- SS410</li> <li>Stuffing Box- Graphite Asbestos packing</li> <li>Wear rings - CF8M</li> <li>Gland - Cast Iron</li> <li>Shaft sleeve &amp; nuts - SS-410</li> <li>Neck ring - CF8M</li> </ol> </li> <li>Driving end bearing: Grease lubricated roller/ ball/ journal bearing.</li> <li>Non driving end bearing: Grease lubricated deep groove ball bearing as well as journal bearing or deep groove ball bearing only.</li> </ol>	2	Nos



20	<b>COUPLING:</b> Suitable size vibration proof flexible coupling, pinbush type with coupling guard, as recommended by the manufacturer of pump, for coupling to motor.	2	Nos
21	<b>BASE PLATE &amp; CC FOUNDATION:</b> Heavy duty common CI/ MS base plate for pump and motor with suitable 'I' section girders, channels, plates, bolts & nuts etc including Civil works and CC Bed foundation work with suitable length and size Steel etc., complete as according to the directions of the Engineer-in- charge.	2	Nos
22	<b>MOTOR :</b> Supply and delivery of 40 HP /30 KW approved make / brand Horizontal Foot Mounted TEFC, Squirrel cage induction 1440 RPM motor for continuous duty conforming to IS12615 with efficiency IE3 for operation on 3 ph, 50 Hz. 440 volts. a. Protection: IP 55 b. Insulation: 'F' Class with dual coated copper and Vacuum Pressure Impregnation (VPI) c. Ambient temperature: 45°C d. Driving end bearing: Grease lubricated insulated ball bearing. e. Non driving end bearing: Grease insulated ball bearing f. Cushion: 10% more than maximum power required by the pump and capable of providing rated output up to (+) or (-) 10% voltage variation and (+) or (-) 3% frequency variation or combination of both.	2	Nos
23	<b>SLUICE VALVE:</b> Supplying, delivery & fixing at site brand new approved make /brand Class 150 raising Spindle Gate valve / Sluice Valve with working pressure rating minimum of 25Kg /cm <sup>2</sup> with the following requirements: Body: Cast Steel / Ductile WCB bonnet with Yoke, Wedge, Gland , Handwheel etc.,. MOC should be Cast Steel , ASTM 216 Grade - WCB , Wedge seat and body seat made up of 13% carbon steel and Stem- Stainless Steel, Sleeve Bush , Handwheel lock nut , Yoke sleeve retaining nut made up of stainless steel and gland packing flexible graphited with manufacturing standard API : 600. 150mm dia.	2	Nos
24	<b>CHECK VALVE/ NON RETURN VALVE :</b> Supplying , delivery & fixing at site brand new approved make /brand Class 150 swing type double flanged Single door Cast Carbon Steel /Ductile Check Valve with manufacturing standard VS 1868 pressure rating minimum of 25Kg /cm <sup>2</sup> with the following requirements: Body, Top Cover , Disk, Hinge made up of Cast Carbon Steel ASTM 216 Grade - WCB and body seat ring disk, seat ring are 13% Carbon Stainless steel with Hinge Pin , Disk Lock Nut, Air Plug and End Plug made up of stainless steel . 150mm dia.	2	Nos
25	<b>PRESSURE GUAGE:</b> Supply and delivery at site approved make/brand stainless steel pressure guage of 150mm dia suitable for the above pumpsets with nipple, stop cock & two way cock for cleaning with necessary length of copper tubing suitable for mounting on the delivery side of pump.	2	Nos
26	<b>SUCTION MANIFOLD:</b> Supply and erection at site Double flanged MS Suction manifold suitable for suction side of the pump including cutting, welding and the flanges should be suitable for the suction side pipeline.	2	Nos
27	<b>SUCTION PIPELINE:</b> Supply and laying suction pipe line at site with suitable dia and 6mm thickness MS pipe with suitable size and type MS Flanges including expander/ Reducer and welding cutting to the main suction manifold etc., complete as according to the suction pipeline theory and practice etc., complete as according to the Engineer-in-charge	2	Nos



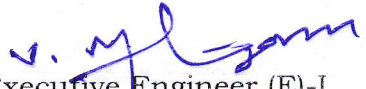
28	<b>DELIVERY EXPANDER</b> : Double flanged MS Expander suitable for delivery pipeline size of the pump including cutting, welding with required size and type MS Flanges to connect the delivery pipeline etc., complete as according to the directions of the Engineer-in-charge	2	Nos
29	<b>DELIVERY PIPE</b> : Supply and laying delivery pipe line at site with suitable dia and 6mm thickness MS pipe with suitable size and type MS Flanges including expander/ Reducer and welding cutting to the main delivery manifold etc., complete as according to the delivery pipeline theory and practice etc., complete as according to the Engineer-in-charge.	1.00	Nos
30	<p><b>FCMA based Soft Starter</b>: Supply &amp; delivery of 40HP soft starter based on Flux compensated magnetic amplifier technology of approved brand and make for smooth starting by torque Control and reduction in starting current etc.</p> <p>40 HP FCMA Starter with 15 KVAR Capacitor comprises of the following :</p> <ul style="list-style-type: none"> <li>• 1 no., approved make/ brand 125 Amps 3 Pole MCCB with RHOM and Shunt</li> <li>• 1 no., approved make/ brand 125 Amps 3 Pole Contactor for run,</li> <li>• 1no- approved make/ brand 110 Amps 3 P Contactor for start ,</li> <li>• 1no. approved brand/make Reactor for 40HP</li> <li>• 3 nos approved make / brand RYB Phase Indicating Lamps,</li> <li>• 1 No., approved make/ brand 0-600V Digital Voltmeter,</li> <li>• 1 No. approved brand/ make 0-100A Digital Ammeter,</li> <li>• 6 Nos approved make / brand 100/5A Current Transformer</li> <li>• 1 no. approved make / brand Ammeter,</li> <li>• 1no approved make/ brand 400/5A Current Transformer,</li> <li>• 1 No. approved make Mini Motor</li> <li>• 1 no. approved make / brand Under Voltage/ Over Voltage Relay,</li> <li>• 1 no. approved make / brand 300VA Control Transformer,</li> <li>• 1 set approved make / brand Control</li> <li>• 1 set approved make / brand ON delay Timer</li> <li>• 1 no. approved make / brand Electronic Hooter</li> <li>• 1 set of Aluminium Busbar of size 1Rx25x6</li> <li>• 1 no., approved make / brand 32 amps TP MCB for capacitor,</li> <li>• 3 nos approved make / brand Push Button Switch (Stop/ Start &amp; Reset)</li> <li>• 1 No. 40 Amps Power Contactor for Capacitor</li> <li>• 1 No. approved make / brand Earth Leakage Relay</li> <li>• 5 nos approved make / brand Aux Contactors 2 No+NC</li> <li>• 1 no. approved make / brand Thermostat</li> <li>• 1 no. approved make / brand Selector Switch</li> <li>• 1 no. approved make / brand Phase Failure Realy with Dry Run Preventor</li> </ul> <p><b>NOTE:</b></p> <ol style="list-style-type: none"> <li>1. The starter panel shall be fabricated using 16 SWG sheet, steel flats and suitable size angle iron.</li> <li>2. All copper joints shall be electrotinned</li> <li>3. The control wiring shall be done using 1100 volts grade adequate size multicore copper cable of approved brand and make.</li> <li>4. All the control wiring shall be properly ferruled.</li> <li>5. The circuit shall be designed for close transition using KORDORFER Principle and should ensure smooth change over from top voltage to the full voltage without any momentary interruption in power supply to the motor.</li> <li>6. The starter panel is required for intallation at an altitude not exeeding 0</li> </ol>	2.00	Nos



	<p>m above MSL and the maximum ambient air temperature of 45o C.</p> <p>7. The panel shall be designed to conform to the requirement of the latest IS 8623, factory built assembly of switch gears and control gears.</p> <p>8. The inter connections shall be done using adequate size insulated electrolytic copper strip and copper cable.</p> <p>9. The Starter shall be suitable for Six starts per hour.</p> <p>10. The FCMA unit should be Air cooled.</p> <p>11. The FCMA soft starter shall be dust and vermin proof and suitable for indoor mounting with coating.</p> <p>12. The erection of Soft Starter Assembly shall be done by using necessary size CC foundation with materials, labour etc. complete</p>		
31	<p><b>POWER SHUNT CAPACITOR:</b> Supply and delivery at site brand new approved make /brand low loss high efficient 15KVAR Power Shunt Capacitors confirming to IS 2834 / suitable for operation on 3 ph 50 Hz 380/440 volts AC supply required for maintining the power factor of the installation of the at not less than 0.95 lagging.</p> <p>a. The capacitor shall be provided with a suitable discharge device to reduce the voltage between the terminal to allowable level within one minute.</p> <p>b. Terminal covers on the units and banks</p>	2	Nos
32	<p><b>LOAD SIDE CABLE:</b> Supply, delivery &amp; laying at site approved make /brand Copper cable to connect FCMA Starter and Motor single core 50 sqmm including required size dia conduit pipe.</p>	2	Job
33	<p><b>ERECTION OF MOTOR &amp; PUMPSET:</b> ERECTION OF MOTOR &amp; PUMPSET: Formation of suitable block machine foundation in RCC 1:2:4 conforming to the latest ISS 2974/using all the required materials such as cement, sand, Coarse aggregate etc., complete including necessary earth work excavation, refilling curing etc., complete. Erection of the pump set mounted on the common base plate on the above foundation using the required materials such as foundation bolts, key locks, self inter locking bolts, washers etc., complete. Leveling, aligning of the pumpsets on the foundation. Grounding and dynamic balancing of the pumpset using all the required materials including adequate size multicore copper cable of approved make. All the control wiring shall be properly ferruled. The circuit shall be designed for close transaction suing KORDORFER Principle and should ensure smooth change dewatering , construction of pump pit etc., including errection of Auto Transformer starter complete. Dismantling of existing Pumpset including lifting of Motor, pump upper casing, lower casing rotating elements, base plates etc., complete including disconnecting suction pipeline, delivery pipe to provide the new pumpset including necessary work required complete.</p>	2	Nos
34	<p><b>ERRECTION OF SOFT STARTER:</b> On CC foundation including formation of CC foundation using all the required materials such as cement, Coarse aggregate etc., complete using required materials such as MS Channel bolts, nuts , washers etc., complete.</p>	2	Nos
35	<p><b>CABLE TERMINATION :</b> Laying of cable inside the pump house and termination of cable using coppber lugs to the terminal end for solder crimping to copper conductors by adopting crimping tool.</p>	2	Job
36	<p><b>LAYING AND JOINTING OF MS PIPES AND SPECIALS :</b> For suction and delivery connections of the pumps using suitable size bolts nuts, packing etc., complete including fixing, all types of valves, guages, strainers, delivery and suction manifold. The work shall include providing pipe supports, thrusts</p>	2	Nos



	block in CC 1:2:4 prop, wherever necessary upto the end of the delivery manifold using all the required materials such as sand, cement, Coarse aggregate including making holes in sump , pump house for laying suction and delivery pipes packing of holes with CC 1: 2: 4 etc. complete.		
37	Supply , erection, testing and commissioning of 25 HP 4 stage with 100mm delivery flange maximum head limit 53-74 mtr having discharge of 700LPM to 1200LPM 3 phase Openwell approved brand Vertical mounting Submersible Motor Pumpset.	1	Nos
38	Supply , erection, testing and commissioning of Start Delta Motor Startering Panel with necessary length cable to starter and Motor pumpset , cabling single phase preventor, overload relay, dry run preventor and allied accessories.	1	Nos

  
 Executive Engineer (E)-I  
 NMPA, Panambur