

**GENERAL ABSTRACT**

Jal Jeevan Mission (JJM)-WSS to Arakkulam and Velliyamattom (part) panchayath-Part II-  
Package IV-Supplying,erecting,testing and commissioning of Clear water pump sets and allied  
works in various pump houses of Arakkulam Velliyamattom Part II-General Civil Work

SI No	Head Description	Amount	
1	Supplying,erecting,testing and commissioning 2nos,12HP VT,RWPS at 12mile,Arakkulam	396152.57	
2	Supplying,erecting,testing and commissioning 2nos, 22HP CF, CWPS From WTP Sump to Alanickal estate	674771.68	
3	Supplying,erecting,testing and commissioning 2nos, 16HP CF,CWPS from WTP Sump to Intermediate	490728.96	
4	Supplying,erecting,testing and commissioning 2nos, 6HP CF, CWPS from WTP Sump to Kavumpady	282704.40	
5	Supplying,erecting,testing and commissioning 2nos, 75HP CF, CWPS from WTP Sump to KSEB filter house	2388211.50	
6	Supplying,erecting,testing and commissioning 2nos, 16HP CF, CWPS at Intermediate to Audit road	493743.05	
7	Supplying,erecting,testing and commissioning 2nos, 16HP CF, CWPS from KSEB Filter house to Lourde Mount St.Antony's Church	493743.05	
8	Supplying,erecting,testing and commissioning 2nos, 17HP CF,CWPS at Pathipally	573388.92	
9	Supplying,erecting,testing and commissioning 2nos,32HP CF,CWPS From KSEB Filter House to Elappally	1044483.20	
10	Supply, Erection of 400 KVA Indoor Transformer with panel board and required accessories and construction of transformer control room	3263668.01	
<b>Total Estimation PAC</b>		10101595.34	
<b>C Extra Charges</b>			
C.001	Provision for GST		
	10101595.34	18.00%	1818287.16
<b>Grand Total</b>			11919882.50
<b>Round off</b>			117.50
<b>Rounded Total(Rs)</b>			11920000.00
Rupees One Crore Nineteen Lakh Twenty Thousand			

Approved By  
**Sudheer TS**  
(PEN:G45721), Chief Engineer

### DETAILED ESTIMATE

Jal Jeevan Mission (JJM)-WSS to Arakkulam and Velliyamattom (part) panchayath-Part II-  
Package IV-Supplying, erecting, testing and commissioning of Clear water pump sets and allied  
works in various pump houses of Arakkulam Velliyamattom Part II-General Civil Work

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
1	Supplying, erecting, testing and commissioning 2nos, 12HP VT, RWPS at 12mile, Arakkulam						
1.001	OD30179/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply, erection, testing and commissioning of VT Pump sets at RAW water pump house- 42 lps discharge and 15 m head. Size of&amp;lt;br&amp;gt;pumping main:250 mm DI K9, Length of pumping main:180 m, Maximum length of column pipe: below 1.5m,&amp;lt;br&amp;gt;Casing: Cast iron, Speed: below 1500 rpm</p> <p>Supply,&amp;lt;br&amp;gt;erection, testing and commissioning of KWA approved make ISI marked high efficiency type , self water&amp;lt;br&amp;gt;lubricated above floor discharge type vertical turbine pump with bronze impeller , SS shaft , MS fabricated (minimum 8 mm ) flanged column assembly with strainer and all accessories conforming to IS 1710. The pump shall be coupled with suitable vertical hollow motor specified in item No. 2.</p> <p>Casing: Cast&amp;lt;br&amp;gt;iron&amp;lt;br&amp;gt;Speed: below 1500 rpm</p> <p>Impeller : Enclosed type Bronze LTB 2 dynamically balanced as per&amp;lt;br&amp;gt;ISO1940 grade 3 standards&amp;lt;br&amp;gt;Sleeve: SS 304 &amp;lt;br&amp;gt;Colum shaft - SS 410 &amp;lt;br&amp;gt;</p> <p>Pump shaft - SS 316&amp;lt;br&amp;gt; Bowl Casing ring: Bronze LTB 2Epoxy painted MS</p> <p>Column pipe 10 mm Thick flanged ends each having length below 1.5 Meter. Strainer fabricated with SS 304 Bearings for spider and bowl synthetic Rubber with outer brass/CI shell &amp;lt;br&amp;gt;Discharge Head Bearing - Thrust / angular roller &amp;lt;br&amp;gt;Ratchet&amp;lt;br&amp;gt;assembly unlocking Centrifugally action &amp;lt;br&amp;gt;&amp;lt;br&amp;gt;Minimum</p> <p>Efficiency: suitable to achieve minimum 70% efficiency for pump &amp; amp; motor&amp;lt;br&amp;gt;( Vibrations should be limited as per HIS 9.6.4.3 standards.&amp;lt;br&amp;gt;Pump performance tolerance should be subject to Hydrate Institute standard class A - No negative&amp;lt;br&amp;gt;tolerance is applicable in efficiency and no positive tolerance in power ).</p> <p>Supply, erection, testing and commissioning of suitable rating high efficiency Kirlosker/crompton/BHEL/Marthon/Alstom or equivalent KWA approved make EF1 squirrel cage Induction,SPDP,Vertical hollow shaft motor suitable for direct&amp;lt;br&amp;gt;coupling with the above pump having RPM below 1500 or nearest capable to operate on voltage of&amp;lt;br&amp;gt;415V(+/-10%)50 hz(+/-3%)AC 3 phase,50 degree Ambient temp.rise. conforming to relevant IS. Motor&amp;lt;br&amp;gt;shall be energy efficient and supporting certificates to prove EF1 or EF2.&amp;lt;br&amp;gt;</p> <p>Design, supply, erection, testing and commissioning of medium voltage sheet steel clad, totally enclosed, dust tight and vermin proof, indoor floor mounted cubicle type switch board fabricated out of 16 swg. Mild steel sheet for operation 3 phase, 415 volts 50 Hz, AC supply system. The panel board for one working a a time with 500 A SFU as incomer, change over switch for pumpsets, incoming main and 2 nos 250 Amps TPN SFU with HRC fuse as outgoing. The panel board consisting of voltmeter with selector switch, Ammeter CTS with selector switch, indication lamps necessary control&amp;lt;br&amp;gt;fuse base with HRC fuse and Nutral link etc.also one year Warrantee and Supply of ELCB/RCCB to be added at panel for safety. The switch board surface treated after degreasing, pickling, phospating etc anti-rust primer coating followed by two coats of spray paint of approved shade as standard construction practice approved by the Kerala Electrical Inspectorate standard and as standard practice.&amp;lt;br&amp;gt;</p> <p>Supply and fitting of suitable rating metalized heavy duty poly propylene (MDXL)power&amp;lt;br&amp;gt;capacitor with capacitor fixing stand, connecting copper cables, termination etc. suitable for the above motor as per IE rules. KVAR shall be provided for enhancing existing power factor to unity.&amp;lt;br&amp;gt;Supply and installation of suitable size,CI Double Flanged heavy duty Sluice Valve with cap PN 2.0, conforming to IS 14846 - 2000. The size shall not be less than the size of pump delivery&amp;lt;br&amp;gt;Supply and installation&amp;lt;br&amp;gt;of suitable size best quality, ISI marked heavy duty cast iron, double flanged reflux non return valve (PN2) as per IS: 5312, The size shall not be less than the size of pump delivery&amp;lt;br&amp;gt;</p>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Starter&lt;br&gt;Supplying&lt;br&gt;a complete integrated soft starter panel capable of operating the motor having a protection level of IP 40 or more with integrated bypass contactor in the panel and motor protection relay having parameters as per IE rules with a power control MCB and line power contactor and the starting current shall be 2.50- 3.50 times the normal full load current of motor with ammeter, voltmeter and phase indicators, space&lt;br&gt;heaters, floor mounting type and having an insulation level of 1100 V. The standard is to be IEC 60947- 4.2.&lt;br&gt;Supply and installation of 150mm dia, Glycerence filled pressure gauge with stop cock/ valve to be fitted in a stand or wall visible while operating the valves with copper tube connections suitable for the above pumps.&lt;br&gt;Supply of all materials and providing suitable plate earthing with 200x1200x12mm CI plate buried in ground at a depth of 3m from ground level with alternate layers of charcoal and salt including the supply and fixing of 32mm dia preforated GI pipe, funnel for watering purposes, with MS/CI cover etc. as per IE standards conforming of IS 3043/87.&lt;br&gt;Supply, laying and giving earthing connections to motors, starters, capacitors, panel boards etc. using suitable size copper flat as per IE rules.&lt;br&gt;Supply, laying, termination and connecting of (Suitable size ) (AYFY/XLPE) insulated armoured Copper cable for working voltage up to 1100 volt confirming to relevant IS specification to lead cable from panel board to starter and starter to motor and starter to capacitor including terminations materials such as gland, socket, gland earth etc. as per IE rules.&lt;br&gt;Erecting the above motor pump set in suitable concrete foundation including fixing the starter, motor, cubical panel board including cost of all materials etc...Installing the electrical items, wiring and earthing, giving connection etc.as directed by the departmental officers as per IE rules and ISI specifications, fitting suction and delivery pipes and specials, Sluice valve, Reflux valve, Gauges etc. including clamping wherever necessary etc. complete and trial run for a period of one week to the satisfaction of the authority officers&lt;br&gt;Including cost of all &lt;br&gt;the components specified above including 1 year warrantee</p>						
	2 Nos,12HP Vertical Turbine pump sets at RWPH 12th mile Arakkulam. Total Head-15m Discharge - 42lps						
	12 HP x 2 Nos, One being stand bye)	2	12.000				24.000
	<b>Total</b>						<b>24.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>24.000</b>
1.002	OD30181/2022-2023						
	Add provisions of 5% of the cost of pump set for Extended Warranty						
	Add provisions of 5% of the cost of pump set for Extended warranty of 1 year(2years total)						
		1	377288.1 60				377288.1 60
	<b>Total</b>						<b>377288.1 60</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>377288.1 60</b>

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
2	Supplying,errecting,testing and commissioning 2nos, 22HP CF, CWPS From WTP Sump to Alanickal estate						
2.001	OD2358/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp; ndash;9 lps Suction Head &amp; ndash; 3 m Length of suction pipe - 3.5 m, static head 117.67 m, Total head 124m, Pumping main - 100mm DI K9, 4000 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	2 Nos, 22HP Centrifugal Pump sets from Sump at Plant to GLSR Alanickal Estate. Total Head- 124m Discharge - 9lps						
		2	22.000				44.000
	<b>Total</b>						<b>44.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>44.000</b>
3	Supplying, erecting, testing and commissioning 2nos, 16HP CF, CWPS from WTP Sump to Intermediate						
3.001	OD2530/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp;ndash;5 lps Suction Head &amp;ndash; 3 m Length of suction pipe - 3.5 m, static head 128.99 m, Total head 132m, Pumping main - 100mm DI K9, 2400 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						
	2 Nos,16HP Centrifugal Pump sets from Sump at Plant to Intermediate. Total Head- 132m Discharge - 6lps						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
		2	16.000				32.000
	<b>Total</b>						<b>32.000</b>
						<b>Total Quantity in HP (Horse power)</b>	<b>32.000</b>
4	Supplying,errecting,testing and commissioning 2nos, 6HP CF, CWPS from WTP Sump to Kavumpady						
4.001	OD2587/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp;ndash;6 lps Suction Head &amp;ndash; 3 m Length of suction pipe - 3.5 m, static head 41.25 m, Total head 45m, Pumping main - 100mm DI K9, 700 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						
	2 Nos,6HP Centrifugal Pump sets from Sump at Plant to Kavumpady. Total Head-45m Discharge - 6lps						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
		2	6.000				12.000
	<b>Total</b>						<b>12.000</b>
						<b>Total Quantity in HP (Horse power)</b>	<b>12.000</b>
5	Supplying,errecting,testing and commissioning 2nos, 75HP CF, CWPS from WTP Sump to KSEB filter house						
5.001	OD2597/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <p>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp; ndash;25 lps Suction Head &amp; ndash; 3 m Length of suction pipe - 3.5 m, static head 146.49 m, Total head 153m, Pumping main - 200mm DI K9, 6000 m.</p> <p>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</p> <p>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</p> <p>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</p> <p>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</p> <p>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</p> <p>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</p> <p>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</p> <p>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; nts; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided</p>						
	2 Nos,75HP Centrifugal Pump sets from Sump at Plant to KSEB Filter House. Total Head- 153m Discharge - 25lps						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
		2	75.000				150.000
	<b>Total</b>						<b>150.000</b>
						<b>Total Quantity in HP (Horse power)</b>	<b>150.000</b>
6	Supplying,errecting,testing and commissioning 2nos, 16HP CF, CWPS at Intermediate to Audit road						
6.001	OD2982/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp; ndash;6 lps Suction Head &amp; ndash; 3 m Length of suction pipe - 3.5 m, static head 135.5 m, Total head 139m, Pumping main - 100mm DI K9, 3500 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	2 Nos, 16HP Centrifugal Pump sets from Intermediate to Audit Road. Total Head-139m Discharge - 6lps						
		2	16.000				32.000
	<b>Total</b>						<b>32.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>32.000</b>
6.002	OD35869/2022-2023						
	Submitting application to KSEBL for power connection and power extension including preparation of drawing obtaining approval for drawings arranging inspection and obtaining ,power connection(necessary statutory fee will be paid by KWA)						
	Submitting application to KSEBL						
	Application	1					1.000
	<b>Total</b>						<b>1.000</b>
	<b>Total Quantity in L.S</b>						<b>1.000</b>
7	Supplying, erecting, testing and commissioning 2nos, 16HP CF, CWPS from KSEB Filter house to Lourde Mount St. Antony's Church						
7.001	OD3065/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp; 6lps Suction Head &amp; 3 m Length of suction pipe - 3.5 m, static head 127.1 m, Total head 133m, Pumping main - 100mm DI K9, 6600 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves. IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						
	2 Nos, 16HP Centrifugal Pump sets from KSEB Filter House to Lourde Mount. Total Head- 133m Discharge - 6lps						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
		2	16.000				32.000
	<b>Total</b>						<b>32.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>32.000</b>
7.002	OD35868/2022-2023						
	Submitting application to KSEBL for power connection and power extension including preparation of drawing obtaining approval for drawings arranging inspection and obtaining ,power connection(necessary statutory fee will be paid by KWA)						
	Submitting application to KSEBL						
	Application	1					1.000
	<b>Total</b>						<b>1.000</b>
	<b>Total Quantity in L.S</b>						<b>1.000</b>
8	Supplying,errecting,testing and commissioning 2nos, 17HP CF,CWPS at Pathipally						
8.001	OD3166/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp;ndash;4lps Suction Head &amp;ndash; 3 m Length of suction pipe - 3.5 m, static head 211.0 m, Total head 212m, Pumping main - 100mm DI K9, 1500 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves.IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided.</li> </ol>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	2 Nos, 17HP Centrifugal Pump sets from KSEB Filter House to Pathipally. Total 212m Discharge - 4psHead-						
		2	17.000				34.000
	<b>Total</b>						<b>34.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>34.000</b>
9	Supplying, erecting, testing and commissioning 2nos, 32HP CF, CWPS From KSEB Filter House to Elappally						
9.001	OD29664/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>Supply and erection of centrifugal pump set with following specifications.</p> <ol style="list-style-type: none"> <li>1. Pump -Supply, erection, testing and commissioning of KWA pre qualified reputed make Centrifugal pump sets with bronze/SS impeller, SS shaft and CI pump casing with suitable type base plate with coupling, coupling guard foundation bolts&amp; nts etc. complete suitable for coupling the pump and motor above the base plate etc. complete including providing suitable foundation including cost of cement, sand and metal etc. complete. The duty condition is as follows Discharge &amp; 6lps Suction Head &amp; 6 m Length of suction pipe - 3.5 m, static head 270.6 m, Total head 280m, Pumping main - 100mm DI K9, 6800 m.</li> <li>2. Motor- Supply, erection , testing and commissioning of KWA pre qualified reputed make horizontal solid shaft foot mounted TEFC squirrel cage induction motor suitable for the above pump working 3 phase 50 Hz AC supply, working voltage 415 V. The motor shall conform to EEFI/IS 325 including providing suitable concrete foundation including cost of cement, sand and metal etc. complete. Flexible coupling shall be used for coupling of pumps and motors.</li> <li>3. Starter- Supply, erection , testing and commissioning of suitable rating fully automatic starter with air break contact suitable for the above motor with over voltage and under voltage protection, single phase preventer, over load relay with motor protection relay with main contactor and bypass contactor as per IE rules and code of practice etc. complete.</li> <li>4. Panel board-(Suitable for operating two pump sets but one pump set at a time) Supply, Design, fabrication, erection, testing and commissioning of Cubicle type, floor mounted MS fabricated dust and vermin proof common control panel board consisting of 1 No. suitable capacity MCCB as incomer and 2 Nos. of suitable capacity MCCB as out going(the two MCCBs are interlocking with each other) providing suitable size aluminum bus bar to interconnect the above MCCBs and fitted with 3 Nos. of indicator lamps, 1 No. volt meter with selector switch etc. complete and provided with a common earth bus for the entire panel and interconnect with the MCCBs as per IE rules and code of practice. The panel shall be fitted on a common base frame on suitable foundation.</li> <li>5. Cabling work- Supply, erection , testing and commissioning of suitable size XLPE cables for the above pump set panel board to starter and from starter to motor, considering energy conservation</li> <li>6. Earthing- Supply of all materials and providing suitable earthing by using suitable size pipe or plate earthing GI/copper strip buried in ground and giving double earthing to motor, starter, panel board etc. as per IE standards.</li> <li>7. Capacitor -Supply, erection , testing and commissioning of heavy duty APP capacitor for the motor to get a power factor above 0.95. The capacitor shall conform to IS 2834</li> <li>8. Valves- Supply of suitable size best quality heavy duty ISI marked CI double flanged sluice valve and non - return valve with suitable pressure rating. Fitting of valves shall include proper RCC support especially for non - return valves. IN case of positive suction pump set, sluice valve should be in suction as well as delivery sides for easy repair works</li> <li>9. Suction and delivery pipe connections- Supply and fitting of suitable size best quality GI/M.S pipe of thickness not less than 8mm for a total length of 10.00m suitable for the above pump set and connecting the suction pipe and valve with suitable flanges nut &amp; bolts IR sheets etc. complete and connecting the delivery side of pump with the valves and suitable specials to connect with the pumping main. If the dia. of suction pipe is above 80mm, CI pipes and specials shall be provided</li> </ol>						
	2 Nos, 32HP Centrifugal Pump sets from KSEB Filter House to Elappally. Total 280m Discharge - 6lps Head-						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	Cost of 32HP (Cost without GST)	2	32.000				64.000
	<b>Total</b>						<b>64.000</b>
	<b>Total Quantity in HP (Horse power)</b>						<b>64.000</b>
10	Supply, Erection of 400 KVA Indoor Transformer with panel board and required accessories and construction of transformer control room						
10.00 1	OD30590/2022-2023						



SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p><b>11 KV 2-POLE INCOMING STRUCTURE</b>  Supply &amp; erection of all materials and providing 11KV sub station yard using 2Nos. 175x85mm ISMB joist of 9.5m height, 100x50mm, MS channel cross arms, 3 sets of 200A, 11KV gang operated AB switches with operating handles of required length, 1 sets of 9.6 KV, 6 KA Lightning arrestors, 3 sets of 11KV D.O fuses, pin insulators, Disc insulators and inter connections of the above items using 8mm dia copper wire with proper copper sockets and including all associated civil works and painting of all structures with 2 coats of zinchromate primer and aluminium paint etc. complete as per standard construction practices approved by Kerala Electcial Inspectorate and relevant standards. Supply of all materials and providing substation yard fencing using 50 x 50 x 6 mm angle iron frame work of size 1500 x 2500 mm fitted with weld mesh of 10 gauge and bolted the same to 100 x 50 x 6 mm vertical chanel erected at 1500 mm c/c and 2500 mm aboveground level of sub station yard and 500 mm below with 300 x 300 mm plain cement concrete ( 1:3:6) base using 40 mm granite aggregate and top surface finished neat and including all associated civil works and painting of all structures with two coats of zinchromate primer and aluminium paint etc. complete as per standard construction practices approved by Kerala Electrical Inspectorate and relevant standards. Supply of all materials and providing 1500 mm wide 2500 mm height weld mesh gate made out of 50 x 50 x 6 mm Angles with necessary foundation locking relevant standards arrangements etc. complete, including painting with two coats of zinchromate primer and aluminium paint as per standards. 11KV Switchgear(Indoor LBS)  Supply, erection, testing and commissioning of 11kv, 300A, 350MVA, totally enclosed, single bus bar, floor mounting in metal clad, indoor extensible type flush mounted horizontal isolation and drawout type Load Break Switch three panel system (1 no. Metering Panel comprising of CTPT unit &amp; TOD Meter as per KSEB specifications, 1 No. LBS as incomer ) suitable for installation in 3 phase , 3wire, 50Hz. AC, 11kv, effectively earthed supply system, comprising of motorised and spring assisted, independent, trip freeclosing mechanism and all metering equipments, protective relays etc. complete as approved by Kerala Electrical Inspectorate and relevant standards. Armoured 2.5 Sqmm copper control cable shall be used for all external interconnections. The cost of control cables both internal and external shall be included in the cost of HT panel. 11 KV/433 V, 400 KVA Cast Resin Transformer  Supply, erection, testing and commissioning of 400 KVA, 11KV / 433V, 3 Phase, 50 Hz, Self cooled (Air Natural) Cast Resin dry type, step down double Copper Wound indoor distribution Transformers having Delta winding on primary and star winding on secondry with Dyn11 vector group connection having neutral brought out on star side with off Circuit tapping + 5 % to - 5 % Insteps of 2.5 % with suitable cable box on HT &amp; LT side conforming to IS2026/1977 and IS11771 / 1985. MV Panel Boards  Design, engineering, supply, erection, testing and commissioning of medium voltage sheet steel clad, totally enclosed, dust tight &amp; vermin proof, indoor floor mounted cubicle type switchboard fabricated out of 14 swg mild steel sheet and bus duct of high conductivity aluminium bus bars, PVC sleeved, air insulated and of adequate size as mentioned below, for operation on 3 phase, 4 wire, 415 volts, 50 Hz. AC supply system. The ACBs switch fuse units, all meters and relays etc. should be reputed make and conforming IS specifications and are assembled, interconnected, earthed and the switch board should be painted with anti-rust primer coating followed by two coats of paint of approved shade, by Kerala Electrical Inspectorate and relevant standards.  Main Switch Board (MSB)  300 A TPN bus bars of sizes: Phase : 2 x 50.8 x 10.16 mm Al-flat, Neutral : 1 x 50.8 x 10.16 mm Al flat  Earthing conductor : 32 x 3 mm copper,  300 A, 25 MVA, 4 pole, ACB with all protective devises one no. as incomer. 200A</p>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>TPN SFUs 1 Nos. as outgoing, 125A TPN SFUs 4 Nos. as outgoing Metering compartments comprising of voltmeters, ammeters power factor meters, selector switches, CDG-11 or equivalent relays, energy meters for all outgoing feeders, indicating lamps etc. complete as per KEI Standards. Lighting Switch Board (LSB) 250A TPN bus bars of sizes: Phase : 50.8 x 6.35 mm Al-flat, Neutral : 50.8 x 6.35 mm Al-flat. Earthing conductor : 25 x 3 mm copper. 250 A TPN Isolator 1 No. as incomer, 32 A TPN SFU 4 Nos. as outgoing. Metering compartments comprising of voltmeter, ammeter, selector switches, indicating lamps etc. complete as per KEI Standards. Lighting Distribution Boards (LDB- I &amp; II)</p> <p>Supply, erection, testing and commissioning of MCB distribution board comprising to the following:</p> <p>32 A TPN 4 pole MCB 1 No. as incomer with 32A 30 m A ELCB.  6/10 A SP MCB - 18 Nos. as outgoing.</p> <p>With tinned copper busbars/cables, interconnection, housed in a suitable metal enclosure as per KEI standards fixed in open system. Cabling</p> <p>3.1) Supply, laying, testing and commissioning of the following size PVC/XLPE insulated, sheathed armoured Aluminium conductor cable (1100/11000 Volts grade) clamped on wall/ceiling with clamps and saddle clips partly laid in cable tray/partly laid in trench. 3 core 150 Sq.mm 11kv PVC/XLPE AL Cable (Incomer to Breaker &amp; Breaker to Metering Panel).  3.5 core 400 Sq.mm PVC/XLPE AL Cable (Transformer to MSB), 3 1/2 core 70 Sq.mm PVC/XLPE AL Cable (MSB to LSB), 3 1/2 core 300 Sq.mm PVC/XLPE AL Cable to Motor Panel board,  4 core 16 Sq.mm PVC/XLPE AL Cable (LSB to LDB),  3 core 6 Sq.mm PVC/XLPE AL Cable, Earthing</p> <p>4.1) Supply Installation and testing and commissioning of pipe earthing with pipe electrode 75/80mm OD, 3 meter long and 3.5 mm thickness - the pipe electrode being first fabricated and then galvanized to minimum 100 microns coating thickness, with no bare steel surface left exposed without zinc coating &amp; the installation done by placing the pipe in a manually or mechanically augured hole of diameter 300 mm and 3.0M depth at the earthing location, with the connection terminal on the top of the pipe electrode above the ground level, and then backfilling the augured hole with watering and compaction using excavated earth mixed with conductivity enhances and moisture retention agents including construction of masonry trough with MS cover as per IS 3043 - 1987. Supply, laying and termination of the following sizes of copper strip/wires for earthing of substation, transformers, LT panel boards, equipments and inter connection of earth pits etc. 25 x 3 mm copper strips,  32 x 3 mm copper strips,  10 swg copper wire  25 x 5 mm copper strips, Internal Lighting</p> <p>Wiring to the Light/Fan points with 3/22 PVC insulated copper conductor along with single run 3/22 PVC insulated copper conductor (Green color) drawn inside suitable size PVC conduit pipe with necessary bends, elbows, junction boxes etc. in open conduit system clamped on struss/wall with suitable clamps and saddle clips including supplying and fixing of 5 Amps flush type control switches fixed on a suitable M.S. box with 3 mm thick hylem sheet cover. (Substation &amp; Pump house, Wiring to the 5 Amps plug points with 3/22 PVC insulated copper conductor along with single run 3/22 PVC insulated copper conductor (Green colour) drawn inside suitable size PVC conduit pipe with necessary bends, elbows, junction boxes etc. in open conduit system clamped on struss/wall with suitable clamps and saddle clips including supplying and fixing of 5 Amps flush type 3 pin plug control switches fixed in combined position on suitable M.S. box with 3 mm thick hylem sheet cover.</p> <p>Supplying and fixing fluorescent tube light fitting (Twin tube - T5 type) with lamp</p>						

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<p>holder, 2 Nos. electronic ballast, 2 Nos. 28W tube of 1200 mm long fittings directly on the wall/ceiling. The fittings shall be made from CRCA MS Sheet of minimum thickness 0.50 mm nominal thickness inside and out side. Supplying and fixing fluorescent tube light fitting (Single tube - T5 type) with lamp holder, one No. electronic ballast, one No. 28W tube of 1200 mm long fittings directly on the wall/ceiling. The fittings shall be made from CRCA MS Sheet of minimum thickness 0.50 mm nominal thickness inside and out side. Supplying and fixing fluorescent tube light fitting (Single tube - T5 type) with lamp holder, one No. electronic ballast, one No. 28W tube of 1200 mm long fittings directly on the wall/ceiling. The fittings shall be made from CRCA MS Sheet of minimum thickness 0.50 mm nominal thickness inside and out side. Supplying and fixing of compact fluorescent lamp fittings with adaptor and 1x28watts lamp on wall and giving connection etc. complete. Supplying and fixing of 1200 mm sweep AC ceiling fan with standard down rod and electronic type regulator. Supplying and fixing of 12" dia single phase light duty 1500 RPM exhaust fan with necessary MS frame work. External Lighting</p> <p>Supplying, erection and testing steel tubular swaged poles as per IS 2713 (Part II) - 1980 of height 7.5M above ground level and 1.5M below ground level bottom 139.7 mm dia and 114.3 mm dia for middle and 88.9 mm dia for top including providing base plate providing concreting in foundation, construction of pillar accomodating fuse and switch housed in weather proof box including wiring to the light fitting with 2 runs of 3/20 PVC insulated copper conductor. Supplying and fixing a 4 way 30 A rated terminal block include the weather proof box. The pole shall be painted with one coat of primer and two coats of enamel paint as required by the Engineer in charge. The street pole shall be as per the drawing enclosed. Single Bracket Type Double Bracket Type Supplying and fixing street light fittings with all accessories and 50 watts LED lamp fixed with above poles. MS Items</p> <p>Supply and fixing of MS angle cable tray for clamping the various sizes of cables in trenches, through walls and trusses etc. Angles should be painted one coat of primer and two coats of enamel paint as required as per KEI Standards. Supply and fixing of 6mm thick checkered plate with required M.S. angle/plate supports over the masonry cable trench at substation and electrical control room. Angle and plate should be painted one coat of primer and two coats of enamel paint as required. Safety Items</p> <p>Supply and providing safety items as per Kerala Electrical Inspectorate and relevant standards.</p> <p>2nos 1800X900X12mm 11KV rubber mat  2sets 11KV Hand Gloves  6nos. 11KV Danger board  1set Fire bucket with stand  2sets First aid box  2sets Shock treatment chart  2sets Fire extinguisher 5kg, Statutory Approval</p> <p>Approval from Electrical Inspectorate including preparation of drawings, obtaining approval for the drawings, arranging inspection of the installations and obtaining safety certificate et; after completion of the works. The necessary statutory fees, if any, payable to the Electrical Inspectorate / KSEB will be paid by KWA. (Note : Scheme approval from the Electrical Inspectorate has to be obtained before supplying the equipments. Payment for the supply of materials will be released only on production of scheme approval).</p>						
	Supply, Erection of 400 KVA Indoor Transformer with panel board and required accessories	1					1.000



EST No. :WRD/KWA-CEP/EST/177/2022\_5\_2\_1 (Edit Id : 7)  
(Dsr year : 2018, Cost Index (Place : Idukki, Value : 141.53), GST : 18%

SI No	Specification	No	Length	Width	Depth	Cf	Quantity
	<b>Total</b>						<b>1.000</b>
						<b>Total Quantity in set</b>	<b>1.000</b>

