

Republic of the Philippines
DEPARTMENT OF AGRICULTURE
Regional Field Unit No. 5
San Agustin, Pili, Camarines Sur

Project Title: SUPPLY, DELIVERY, INSTALLATION AND COMMISSIONING OF 1-UNITS SOLAR POWERED IRRIGATION SYSTEM FOR OAP
Project Location: Province of Camarines Sur
Appropriation: ₱850,000.00
Source of fund :
Subject: BILL OF QUANTITIES AND COST PROPOSAL

Classification: Irrigation Facility
Number of Unit: 1
Net Length:
Project Duration : 30 C.D.
Starting Date: upon receipt of NTP

Scope of Work:
-Delivery of Labor and Materials for the Construction of Solar Panel Framing Structure
-Installation of Solar Pump, Solar Panel Array, Electrical Wiring, Controller Devices and Components
-Installation of Metal Platform and Support on Elevated Tank
-Installation of Irrigation Distribution Pipe, Accessories and Component

MINIMUM EQUIPMENT REQUIREMENT

Description	No.	Description
Service Truck	1	3-5 m ³
Welding Machine	1	300 Amp, Gas Driven
Drilling Rig Machine	1	4" Min. Borehole, Mechanical Operated
Electric Bar Cutter	1	12" Diameter Disc
Hand Tools	enough	

TECHNICAL PERSONNEL REQUIRED

Description	No.	Description
Foreman	1	
Asst. Foreman	1	

COST OF PROPOSED WORK

Item	Description	Quantity	Unit	Unit Cost (PhP)	Total Amount (PhP)
PART I	General Requirements				
	1.1. Mobilization / Demobilization	1.00	L.S.		
Sub-total					
PART II	SOLAR MOUNTING STRUCTURE, CONCRETE AND REINFORCEMENT				
	Part A	EARTH WORKS			
	102	Common Soil Excavation	9.00	cu.m.	
	100(2)	Structural BackFill/Backfilling	4.00	cu.m.	
	201	Aggregate Sub Base Course (Gravel Fill)	1.00	cu.m.	
	Part B	REINFORCE CONCRETE WORKS			
	405(1)	Concrete Class "A" w/ Forms (Pedestal)	0.75	cu.m.	
	405(2)	Concrete Class "A" w/out Forms (Pedestal Footing)	2.00	cu.m.	
	404	Reinforcing Steel Bar	240.00	kgs.	
	Part C	METAL WORKS			
	I.I.C.1	Vertical Structure	1.00	e.a.	
		-3" dia. G.I. Pipe S40 Post (2 pcs.) -10mm thk. Metal Plate (1 sq.m.) -8"x20mm dia. Anchor Bolt (28 set)			
	I.I.C.2	Horizontal Structure	1.00	e.a.	
	-1/4"x2"x5" Channel Bar/ C Bar (2 pcs.) -Pre-Fabricated PV Module Railings, (8 pcs.) -1 1/2" Dia. S40-G.I. Pipe (8 pcs.) - 2"x2"x1/4"x20' Angle Bar Cleat (1 pcs.) -2"x20mm dia. Bolt and Nut, (64 pcs.)				
Sub-total					
PART III	SUBMERSIBLE DEEP WELL PUMP				
	SPL1	2" Diameter Outlet, 2.2KW (3.0HP), Single Phase 60Hz, AC/DC Submersible Pump	1.00	unit	
	-Capacity of at least 85 cubic meter per 5 hours operation per day at the following condition:				
	1. Pump Type : Submersible Pump	8. Outlet Diameter : 2 Inches			
	2. Total Dynamic Head : 30.0m (minimum)	9. Driver : Electric Power			
	3. Voltage : 230-415 Volt	10. Structure : Centrifugal			
	4. Frequency / n : 60 Hz / 3500 rpm	11. Shaft : Duplex Stainless Steel			
	5. Phase : Single Phase	12. Motor : NEMA Standard Single Phase Induction Type Motor			
	6. Pump/Impeller : AISI 304 Stainless Steel	13. Temperature : -5°C to +120°C			
	7. Working Principle : Submersible				
Sub-total					
PART IV	SOLAR PV MODULES, FITTINGS AND ACCESSORIES				
	SPL2	-450Wp PV Solar Module, Poly-Crystalline	8.00	pcs.	
	Max Power: 450 Watt Open Circuit Voltage: 49.60V Short Circuit Current: 11.53A	Optimum Operating Voltage: 41V Optimum Operating Current: 10.98A Temperature: -40°C to +90°C			
Sub-total					
PART V	SOLAR INVERTER				
	SPL3	-4.0KW, 200V-450V DC Input, Single Phase-230V/415V-25Amp AC Output, Inverter	1	unit	
		-Built-in Maximum Power Point Tracking (MPPT) -AC/DC Compatibility -Overvoltage and Undervoltage Protection	-Overload and Overcurrent Protection -Enclosure Class: IP 66		
SPL4	-Out Door Controller Box (300mm x 500mm x 600mm)	1	unit		
Sub-total					

PART VI	PV DISCONNECT, PV PROTECT and COMBINER DEVICE				
	SPL5	DC-AC Line Protection	1	L.S.	
		-6 Pair Terminal Block Connector (2 pcs.)			
		-DC MCCB, 15A 4P (2 pcs.)			
		-DC MCCB, 30A 2P (2 pcs.)			
	-DC SPD, 500VDC 2P (2 pcs.)				
	-AC MCCB, 30A 3P (2 pcs.)				
Sub-Total					
PART VII	CABLE WIRE and ACCESSORIES				
	SPL6	System Wiring Installation	1	L.S.	
		-3.5mm ² THHW (#12 AWG) Wire (50 L.M.)			
		-Royal Cord 3C #12 AWG + 1C #12 AWG (50 L.M.)			
		-Royal Cord 2C, #12 AWG (20 L.M.)			
	-20mm Diameter PVC Pipe Conduit (9 pcs)				
Sub-Total					
PART VIII	OUTLET WORKS				
	Part A	PIPE OUTLET INSTALLATION			
	SPL7	Pump Outlet and Distribution Pipe Installation	1	L.S.	
		-6m X 2" Diameter S40 G.I. Pipe (5 pcs)			
		-50m X 3/4" Diameter SDR17 HDPE Pipe (2 roll)			
	-2" Diameter G.I. Pipe 90° Standar Elbow (6 sets)				
Sub-Total					
PART IX	ELEVATED TANK STRUCTURAL WORKS				
	Part A	EARTH WORKS			
	102	Common Soil Excavation	6.00	cu.m.	
	100(2)	Structural BackFill/Backfilling	3.00	cu.m.	
	201	Aggregate Sub Base Course (Gravel Fill)	0.50	cu.m.	
	Part B	REINFORCE CONCRETE WORKS			
	405(1)	Concrete Class "A" w/ Forms (Pedestal)	0.50	cu.m.	
	405(2)	Concrete Class "A" w/out Forms (Pedestal Footing)	1.20	cu.m.	
	404	Reinforcing Steel Bar	153.00	kgs.	
	Part C	WATER TANK AND FRAMING STRUCTURE			
SPL8	2,000 Liters Stainless Water Tank and Accessories	1.00	L.S.		
SPL9	Metal Framing Platform and Support Structure	1.00	L.S.		
Sub-Total					
PART X	BOREHOLE/ WELL DEVELOPMENT				
	SPL10	Bore Hole Drilling (4" Borehole at 30meter Minimun Deep)	1.00	L.S.	
	SPL11	4" Inside Diameter PVC Blue Pipe Borehole Chasing Installation	1.00	L.S.	
Sub-Total					
TOTAL PROJECT COST					~

Note: All taxes, contractor's profit and hauling cost are included in unit cost per item.

NAME AND SIGNATURE OF BIDDER