

BILL OF QUANTITIES

Project : UPGRADING OF FEEDER LINES FOR PUMP STATION #1 & CONSTRUCTION OF HOUSING FOR PS1 & PS3
 Location : Boracay Island, Malay, Aklan

ITEM NO.	DESCRIPTION	UNIT	QTY.	UNIT COST	AMOUNT
I.	GENERAL REQUIREMENTS				
	A. Health and Safety Program	lot	1.00		
	B. Project Signage	lot	1.00		
II.	ELECTRICAL WORKS				
	a. Main Circuit Breaker	lot	1.00		
	b. Wires	lot	1.00		
	c. Pipes & Fittings	lot	1.00		
III.	CIVIL WORKS				
	Pump Station 1				
	Roofing Works	lot	1.00		
	Rib-type Long Span Roofing with complete accessories (Labor and Materials)	m ²	85.80		
	Post and Base Plate	unit	4.00		
	Pump Station 3				
	Area 1				
	Roofing Works	lot	1.00		
	Rib-type Long Span Roofing with complete accessories (Labor and Materials)	m ²	22.63		
	Post and Base Plate	unit	1.00		
	Area 2				
	Roofing Works	lot	1.00		
	Rib-type Long Span Roofing with complete accessories (Labor and Materials)	m ²	22.63		
	Post and Base Plate	unit	1.00		
	Equipment Rental	lot	1.00		
	Painting Works	m ²	107.90		
GRAND TOTAL					
		In Words: Pesos			
		In Figures: Php			

Submitted By _____

 Name of the Representative of the Bidder

 Name of the Bidder

 Position



Republic of the Philippines
Tourism Infrastructure & Enterprise Zone Authority

PROJECT SPECIFICATIONS

I. GENERAL CONDITIONS

The work to be undertaken shall include the furnishing of labor, materials, tools and equipment for the following:

Project : UPGRADING OF FEEDER LINES FOR PUMP STATION #1 & CONSTRUCTION OF GEN SET HOUSING FOR PS 1 & PS 3

Location: Boracay Island, Malay, Aklan

A. Scope of Work

The construction work must be executed strictly in accordance with the plans and specifications. The following principal items of work shall include but not limited to the following:

1. General Requirement
2. Electrical Works
3. Civil Works
4. Other items or works as maybe required by plans and related contract documents necessary to satisfactorily complete the project

The construction procedures shall be done in accordance with the DPWH Standard Specifications, and in full compliance with the approved plans and specifications.

All items not specifically mentioned in the specifications or noted on the plans but which are obviously necessary for the completion of the work shall be included.

II. SITE WORKS

A. Scope of Work

Furnish all materials and equipment and perform labor required for the disposal of surplus excavated materials, rubbish and debris resulting from site clearing, stripping, site grading and trenching, demolition, removal and foundation excavation.

B. Clearing the Site

The building site shall be leveled according to the plans and cleared of rubbish, roots and other perishable and objectionable matters to a suitable sub-grade.

Debris and rubbish shall be removed and transported in a manner that will prevent spillage on streets or adjacent areas. In cases of spillage, clean up the streets and adjacent areas that were affected.

III. STEEL WORKS

A. Scope of Work

1. Furnish all materials and equipment and perform labor and services required to complete fabrication and erection of all structural steel and other miscellaneous steel in accordance with the plans.

B. Materials

1. Structural steel shall conform to American Society of Testing Materials (ASTM) A-36, with F_y of 248 MPa.
2. Electrodes for welding shall conform to the latest requirements of the American Welding Society (AWS).
3. Use only approved brand of red lead paint and linseed oil for all shop painting for structural steel.

C. Execution

1. Tighten all bolts to a bolt tension not less than the proof load given in the applicable ASTM Specifications for the type of bolt used.
2. Never let compression members deviate from straightness by more than 1/100 of the axial length between points which are to be laterally supported.
3. Let completed members free from twists, bends, and open joints. Sharp kinks or bends shall be the cause of rejection of materials.
4. Give all steelwork, except those to be encased in concrete, one coat of shop paint.
5. Make all work well formed to shape and size shown and assemble as detailed in the plans.
6. Weld or bolt connections as indicated in the plans. Make all details of assembly strong with sufficient stiffness. Form joints exposed to weather in a manner that excludes water.
7. Provide all work with proper clearances. Fabricate and install in a manner to provide for expansion and contraction but will ensure rigidity and provide close fitting of sections.
8. Provide a protective coating which is resistant to alkaline, mortar and plaster to be applied to all sections after fabrication.

IV. ROOFING

A. Scope of Work

1. Furnish materials and equipment and perform labor required to complete fitting and installation of roofing, flashing components, strap and rivet units as well as the application of supplementary materials to make the roof watertight and leak-proof.

B. Execution

1. Care should be exercised in the proper anchorage of all roofing frames.
2. Installation of roofing including valleys, hips, ridge, and flashings shall be as per manufacturer's installation procedure.
3. Side lap fasteners shall be done by rivets and washers paced from 12" to 18" on centers.
4. Provide gutter, flashings, and counter flashings, gauge 0.600mm pre-painted galvanized sheets or any approved equivalent at all critical points where water may seep through.

C. Materials

1. Rib-type Long Span Roofing
2. Roof Flashing
3. 12mm Ø x 80mm Anchor Bolts
4. 3" x 6" Tubular Frame
5. 2" x 3" x 1.0mm thk. C-Purlins
6. 2" x 2" x 1/4" Angle Bar
7. 5mm Thk. Base Plate

V. FINISHING

All finishing materials should be of best quality. Submit sample for approval of the designer prior to installation.

A. Painting

1. Scope of Work

- a. This item consists of furnishing all paint materials, varnish, and other related products, tools, equipment, and labor required in undertaking the proper application of painting, varnishing, and related works indicated on the plans. See drawings for location, quantity, and extent of surfaces to receive paint and varnish.

2. Materials

- a. Tinting colors shall be first grade quality, pigment ground in alkyd resin that disperses and mixes easily with paint to reduce the color desired. Use the same brand of paint and tinting color to effect good paint body.
- b. Concrete neutralizer shall be first grade quality concentrate diluted with clean water and applied as surface conditioner of new interior and exterior walls thus improving paint adhesion and durability.
- c. Silicon water repellent shall be transparent water shield especially formulated to repel rain and moisture on exterior masonry surfaces.
- d. Patching compound shall be fine powder type material like calcimine that can be mixed into putty consistency, with oil base primers and paints to fill minor surface dents and imperfections.
- e. Varnish shall be a homogeneous solution of resin, drying oil, drier and solvent. It shall be extremely durable clear coating, high resistant to wear and tear without cracking, peeling, whitening, spotting.
- f. Sanding sealer shall be quick drying lacquer, formulated to provide quick dry, good holdout of succeeding coats, and containing sanding agents to allow dry sanding of sealer.
- g. Glazing putty shall be alkyd-type product for filling minor surface unevenness.
- f. Painting Schedule:
For New Concrete/ Masonry Surfaces:
One coat of Acrylic Flat base paint
Two coats of Acrylic Semi-Gloss base paint

3. Execution

- a. All paints shall be evenly applied. Coats shall be of proper consistency and well brushed out so as to show a minimum of brush marks.
- b. All coats shall be thoroughly dry before the succeeding coat is applied.
- c. Where surfaces are not fully covered or cannot be satisfactorily finished in the number of coats specified such preparatory coats and subsequent coats as may be required shall be applied to attain the desire evenness of surface without extra cost to the owner.
- d. Where surface is not in proper condition to receive the coat the Engineer shall be notified immediately. Work on the questioned portion(s) shall not start until clearance be proceed is ordered by the Engineer.
- e. Hardware, lighting fixture and other similar items shall be removed or protected and re-installed after completion of the work.

VI. ELECTRICAL WORKS

A. Scope of Work

1. The work of the contractor consists of furnishing of all tools, labor, equipment, and materials and performing all operations in connection with the electrical system shown on the drawing, their test and inspection, complete and in accordance with these specifications and drawings and subject to the terms and conditions of the contract, and all other labor and materials not specifically mentioned under sections, to bring the electrical system to operating conditions and be ready for use by the Owner.

B. Applicable Documents

1. The works covered by these specifications shall be governed by the requirements of the Philippine Electrical Code, US Federal Specifications, NEMA standards.

C. Materials

1. Rigid steel conduit shall be hot-dipped galvanized mild steel pipe and shall 3m lengths including coupling.
2. PVC electrical conduit shall be supplied in standard effective lengths of 3.0m.
3. Wires and cables shall be insulated for 600 volts. Feeder and branch circuit wires and cables shall be type TW or THHN as manufactured.
4. Conduit's fittings shall be US Underwriters Laboratories (UL) listed or approved local equivalent.
5. Outlet boxes shall be hot-dipped galvanized or case metal as required. Thickness of pressed steel boxes shall be less than gauge #16.
6. Circuit breakers for panel boards shall be molded case circuit breaker with quick-make, quick-break, trip-free mechanisms. They shall meet US Federal Specifications and NEMA standard.
7. Panel board shall be bolt-on type as manufactured by NEMA or approved equal.

D. Installation

1. Grounding

The following shall be grounded in accordance with the drawings and the requirements of the Philippine Electrical Code with standards grouping practices:

Metallic conduit and raceway system including gutters, cabinets and boxes.

Non-current carrying metal parts of all electrical equipment including fixtures and motors.

2. Feeders

Distribution voltage shall be 460V, 3-phase, 4-wire, feeder conductors and conduit shall be installed as shown on the drawing and no change in size shall be made without consent of the Owner. Feeder conductors shall be continuous and without splices between terminals. No splicing is allowed.

3. Branch Circuit

The drawing indicates the general methods of installations of all circuit wiring and the outlet which are to be supplied from this circuit. Branch circuit conduits shall be run from outlets to panel boards as directed as the building conditions will allow. Circuit allocations shall be indicated on the drawings where it becomes necessary to correct any outlet to circuit other than shown on the drawings. This shall be done without extra charge and only upon written consent of the Owner. No wire smaller than 2.0mm² (#14AWG) and 3.5mm² (#12 AWG) shall be used for any lighting and power circuits, respectively.

4. Panel boards and cabinets

Panel boards shall be mounted with their centers at 1.40m above the floor unless otherwise indicated by field conditions.

5. Wires and boxes

No wire shall be drawn into the raceway until works, which may cause injury to the wires, is completed and until permission is given by the Owner in writing. Only powdered lubricant not injurious to cable insulation and raceways shall be used only when lubrication is necessary.

6. Conduit System

Not more than four 90 degrees bend shall occur in any run. When it becomes necessary to have more than four 90 degrees bends in any run, an intermediate pull box shall be installed to facilitate pull-in wires. All conduits run shall as called for on the drawings. Conduits shall be installed in such manner as not to weaken or interfere with the structure or the building. No horizontal runs embedded conduit shall be permitted in solid wall and partitions. Conduits below grade line shall be encased in concrete enveloped with minimum thickness of 50mm (2") or embedded in floor slab. Exposed conduit shall run parallel or at right angles with lines of the buildings and shall be securely fastened in place by means of approved fastening. Conduits support shall be fastened to walls by means of screws or bolts with expansion sleeves. The use of wooden or lead plug is not permitted. Conduits shall be cut by hacksaw, the ends shall be reamed after being firmly attached to cabinets or boxes by means of locknuts.

7. Testing

a. Ground test


The entire installation shall be free from improper ground and from short circuits. Each panel shall be tested with means connected. Lamps removed or omitted from the sockets and all switches closed. Each individual power equipment shall be connected for proper and intended operation. In no case shall the resistance be less than that allowed by the Regulations for electrical equipment of building. Failures shall be corrected in any manner satisfactory to the Architect and Engineer.

b. Performance test

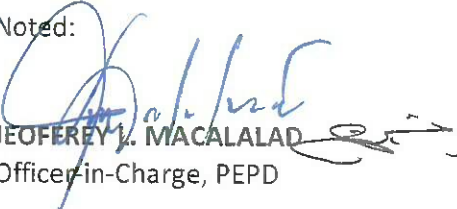
The electrical contractor shall test all system of entire electrical installation for proper operational conditions. These conditions shall apply to the power and lighting installation, voltage drop, grounding defects.

Prepared by:


ENGR. ANGELITO A. ROQUE
Electrical - Estimator


GAVRIA ANNE M. BOHOL
Civil - Estimator

Noted:


JEOFEREY V. MACALALAD
Officer-in-Charge, PEPD



Republic of the Philippines
Tourism Infrastructure & Enterprise Zone Authority

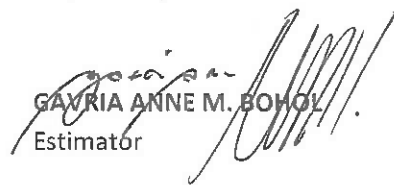
MANPOWER & EQUIPMENT

Project : UPGRADING OF FEEDER LINES FOR PUMP STATION #1 & CONSTRUCTION OF GEN SET HOUSING FOR PS1 & PS3
Location : Boracay Island, Malay, Aklan
Duration : 60 CD

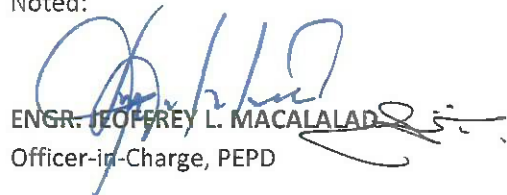
Minimum Required Manpower	Quantity
Project Manager	1
Project Engineer	1
Materials Engineer	1
Project Foreman	1
Skilled Worker	2
Helper/Laborer	3
Safety Officer	1
Certified First Aider	1

Minimum Required Equipment	Quantity
Basic Construction Tools	1
Welding Machine	1
Cutting Outfit	1

Prepared by:


GAVRIA ANNE M. BOHOL
Estimator

Noted:


ENGR. JOSEPH L. MACALALAD
Officer-in-Charge, PEPD