



REPUBLIC OF THE PHILIPPINES  
Department of Science and Technology  
Philippine Atmospheric, Geophysical and  
Astronomical Services Administration (PAGASA)  
Science Garden, Agham Road, Diliman, Quezon City 1100

**TERMS OF REFERENCE**  
for  
**DESIGN AND BUILD SCHEME FOR THE ESTABLISHMENT OF AGNO, PANGASINAN  
DOPPLER WEATHER SURVEILLANCE RADAR TOWER**

**Project Title:** Design and Build Scheme for the establishment of AGNO, PANGASINAN Doppler Weather Surveillance Radar Tower including Provision for Water Supply System and 37.5KVA, 220 VAC, 1- $\Phi$  Commercial Electric Power Supply, Electrical Service Entrance Post, Office Furniture, Fixtures, Perimeter Fence, Public Comfort Room, Security Guardhouse and Access Road.

**Project Location:** Brgy. Patad, Barrio Boboy, Municipality of Agno, Pangasinan

**Project Owner/  
Procuring Entity:** Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)

**Project Description:**

A Doppler Weather Surveillance Radar Station Building and Tower is to be constructed at Brgy. Patad, Barrio Boboy, Municipality of Agno, Pangasinan. The project was funded through GAA appropriated in PAGASA 2016 budget in support of the project in enhancing the forecasting capability of PAGASA for disaster prevention and mitigation. The proposed project will house the Doppler Weather Radar System and its peripherals, communications (indoor) and other basic facilities such as power, water supply systems, perimeter fence, public comfort room, security guardhouse, 6-meter x 1.145.30-meter rough access road from Provincial road to Doppler radar site, Landscaping and Station signage.

This design and build scheme is being adopted to fast track the project's implementation, being a national project that needs to be completed to meet the commitment of the President to the people that all Doppler radar installations shall be completed by 2017 and further, to provide income generation and job opportunities in the light of the worldwide economic recession.

**Conceptual Design:**

The Agno, Pangasinan Doppler Weather Surveillance Radar Station Building would mainly involves the construction of a **28.45-meter** high reinforced concrete tower from the natural ground level with a dimension of **6.0m x 6.0m**. The tower shall be part of, and integrated with a 1-storey structure, whose dimensions are generally **20.0m L x 11.0m W** for the radar observation and operations room, briefing room, and stand-by generator power house. The structures shall be mainly of the reinforced concrete type which shall be used to house the station's weather radar system instruments, operation consoles, workstations, transmitter and its peripherals. Stability of the structure, particularly the radar tower shall be given utmost consideration such that it could withstand 300 KPH wind speed. On top of the tower, the radar antenna disc, antenna pedestal and RADOME shall be installed. This is to ensure high accuracy of weather data observed using the proposed radar system.

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The major parts of the structures shall be the main office space (radar observation and operations room), off-duty observer's quarters, power house for two (2) stand-by generators, radar control and telecommunication room, and briefing/conference room. The tower shall also house at the topmost level, the Radar Transmitter Room combined with a view deck.

A RADOME, which is made up of fiber glass will be installed at the top of the building/tower. This will serve as covering and protection of the radar antenna disc, antenna pedestal and its peripherals. The total weight of these equipment and facilities (radome, antenna disc and antenna pedestal) is about 15 tons.

For reference purposes, a conceptual plans and designs detailing elevation plan and the floor plans is attached. This will also serve as guide in the preparation of plans and designs for the designer/contractor.

### **Performance Specifications and Parameters:**

#### **a) Design preparation**

The designer/contractor shall prepare all the plans and designs necessary for the construction of a 6.0m x 6.0m, 28.45 meter high concrete tower integrated with a 20.0m L x 11.0m W 1-storey office/building base on the conceptual plans and designs to be provided by PAGASA. The plans and designs shall compose of complete engineering, architectural and structural plans and designs of footing and foundation, columns and beams, and other parts of the structures, such as stairs, doors and windows. **The plans and designs shall conform to the latest building code NSCP 2010 edition.** The plans and designs shall be required in Electronic format, preferably using AutoCAD Software with its corresponding hard prints. The stability of radar tower shall be mainly considered in the preparation of designs. **Before the implementation of the project, these engineering plans, design, drawings, and others shall first be subjected to review and approval of the PAGASA.**

#### **b) Detailed Engineering Requirements**

Upon award of the design and build contract, the winning bidder shall be responsible for the preparation and submission of all necessary detailed engineering investigations, surveys and designs in accordance with the provisions of Annex "A" of the IRR-A of R.A 9184, (with the exception of the bid documents and the ABC) as follows:

- a) Survey
- b) Site Investigation
- c) Soils and Foundation Investigation (Soil Boring Test to be provided by PAGASA)
- d) Construction Materials Investigation
- e) Preparation of Design Plans
- f) Preparation of Technical Specifications
- g) Preparation of Quantity and Cost Estimates
- h) Preparation of Program Work
- i) Preparation of Proposed Construction Schedule (and estimated Cash Flow for projects with Schedule over Six (6) Months)
- j) Preparation of Site or Right-of-Way Plans including Schedule of Acquisition
- k) Preparation of Utility Relocation Plan
- l) Preparation and submission of Design Report

- m) Environmental Impact Statement for critical project as defined by the Department of Environment and Natural Resources (DENR)
- n) Preparation of minimum requirements for a Construction Safety and Health Program for the Project being considered

**Considering that this is a Design and Build project, bidders are required to submit detailed engineering designs as part of their bids.**

For reference and as applicable to the project, the PAGASA will secure the following:

1. Certificate of Non-Coverage (CNC) from the DENR, in lieu of the Environmental Compliance Certificate (ECC);
2. DOH Radiation Hazard Permit;
3. ATO (now CAAP) Height Clearance Permit for the allowable maximum height of the Radar Building/Tower;
4. Geotechnical Investigation Report

**e) Construction and Contract Implementation**

The designer/contractor shall be responsible for securing all the necessary permits (Building Permit, Electrical, Sanitary, Commercial Electric Power connection). Securing the Building Permit shall be necessary before commencement of any works and shall form part of the contract implementation, at the expense of the winning contractor.

The designer/contractor shall have charge and care of the work. He shall take every precaution against damage or injury caused by the action of the elements or from any other cause whether arising from the execution or from the non-execution of work.

The design and build contractor shall be solely responsible for the integrity of the detailed engineering design and the performance of the structure irrespective of the approval/confirmation by the procuring entity.

The contractor/designer shall rebuild, repair, restore and make good all damages or injuries to any portion of the works occasioned by any of the above causes and bear related expenses, except due to Force Majeure and without fault or negligence of the contractor.

Rain, windstorm, or other natural phenomena of normal intensity, based on the official weather reports for the particular season of the year in which the works are being implemented shall not be construed as Force Majeure or unforeseeable causes beyond the control of the contractor.

**Preliminary Survey and Mapping**

The project site is located at Brgy. Patad, Barrio Boboy, Municipality of Agno, Pangasinan about 83.25km, from Lingayen City.

The lot where the PROPOSED DOPPLER RADAR in the Municipality of Agno, Pangasinan is situated on the property of Mr. Ignacio Batalla where he Leased an area in the total of 1,000 sq.m. of land.

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