



## **Calamba Water District**

Lakeview Subdivision, Halang, Calamba, Laguna  
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### TERMS OF REFERENCE FOR CONSULTANT SERVICES

### **Water Balance Study of CWD**

## **INTRODUCTION**

Consulting firms are invited to submit proposals for consultancy services for the Water Balance Study –The project aims to help CWD protect and sustain the Calamba City water sources in order to meet both the present and future water demands needs for ten (10) to twenty (20) years.

The consultant chosen shall carry out the work in accordance with the TERMS OF REFERENCE outlined in this and shall report their findings to the CWD in adherence to the programme detailed in their proposal.

## **1.0 BACKGROUND INFORMATION**

### **1.1 Location**

Calamba is bounded in the East by Laguna de Bay, in the north by Cabuyao, in the south by Los Baños and in the west by Santo Tomas and Tanauan, Batangas.

Only 54 km. away from Metro Manila, the city is a haven for industries, hence the influx of migrants. Considered as the heart of CALABARZON (Cavite, Laguna, Rizal, Quezon) due to the numerous companies in its area, Calamba is the premier industrial hub outside of Metro Manila.

Business opportunities abound in all corners of the city. Being host to both local and multi-national companies, it was identified as a major economic growth center in Laguna. With the city's well developed facilities and utilities, investors prefer to operate in the city. Calamba City has an estimated area of 149.50 km<sup>2</sup> with the population of 454,486 as of 2015 Census.

### **1.2 Calamba Water District (CWD)**

The CWD has come a long way since its inception in 1976; it rose from small to category A water district. Its sources of funds come from the income of water sales and incidental revenues from customers. For capital expenditures, internal generated funds are being used aside from loans granted by Local Water Utilities Administration and from other lending institutions. For almost forty four years, CWD has been faithful to its mission to provide sustainable, potable and adequate supply of water to the people of Calamba City. Moreover, to-date it has more than 265 employees working together to give quality services to its service areas.

### 1.3 Calamba Water District Water Supply

The CWD serves water to about 68% of the city population or about 61,860 service household *connections* (December 2019). The water supply comes from Bucal Spring and 62 groundwater wells at different areas ranging from 5 HP to 75 HP pumps. The approximate range volume produced monthly is 1.0 to 1.8 MCM. The Non Revenue Water is approximately more than twenty (20) % subject for validation upon the completion of non-revenue countermeasures such as of the, metering programs , rehabilitation of water main distribution lines etc.,.

The total pipe length of the CWD distribution network is about 576.531 km with pipe sizes ranging from *25 mm to 600 mm* diameter (as of December 2019). Approximately 350.54 km aging 35 years old above and 225.991 aging 35 years old and below. The Calamba Water District presently encountering difficulty in expanding its services due to many reasons such of these are the deficiency of water sources in the upland part of the City and the city proper groundwater being over exploited, watersheds being degraded and diminished and limited access to groundwater areas caused by urbanization. Therefore, there is a need to conduct the study of the Water Balance and Water Supply System Improvement and Development for the ten to twenty years purposely for the “ Water Security and Sustainability” of the CWD and Calamba City constituents.

## 2. OBJECTIVES

### Water Balance Study

1. To identify potential water source of the city, magnitude, location, availability and the supply and use problems of Calamba.
2. To determine the adequacy of water planning and data management.
3. To identify the water conservation opportunities to sustain the present and future demand of the Calamba City.

## 3. EXPECTED OUTPUT

3.1 Water Balance Study includes the following format and scope:

### 3.1.1 Inventory of the Surface Water Availability

- Surface Water Assessment by collecting field survey, primary and secondary data.
- Estimation of Surface Run off from Rainfall through hydrological and meteorological data
- Proposed and Existing Dams in the Project Area( if any)
- Surface Water Availability and Proposed Interventions (if any)

### 3.1.2 Inventory of Groundwater

- Geology and Groundwater Availability and Age, Methodology Adopted in collecting field survey, primary and secondary data.
- Findings and Recommendation.

- 3.1.3 Assessing Water Consumption and Quality
  - Water Consumption by Agriculture, People, Industrial and Commercial establishment.
- 3.1.4 Water Balance Model Integrating Geographic Information System
- 3.1.5 Water Management Plan
  - Water Resources, Watershed and Water Quality Monitoring Management
- 3.1.6 Conclusion and Recommendation of the study
- 3.1.7 Above items include presentation of reports in table, graphs, figures schematic lay out and other forms that can be understood by non-technical personnel.
- 3.1.8 The Report Writing

The comprehensive report shall be presented on 8 1/2" x 11" format or the metric equivalent suitably bound or ring bound. A sufficient number of colored drawings, tables, charts, figures, computerized field data, models, GIS output, etc. shall be included to clearly and completely illustrate the findings of the Water Balance Study- stage 1 and soft copy of the report as describe in the deliverables.

The report content shall contain the ff:

Table of Contents

Background

Project Area

The rest of the content as describe in the above expected output

- 3.1.9 Attends and meet frequently with CWD relative to the Water Balance Study-for sharing and discussion of progress and updates at CWD office when necessary or requested by CWD.
- 3.1.10 Submits and presents the completed preliminary and final study.

#### 4.0 SCOPE OF WORKS

The scope of works shall satisfy the requirement necessary to complete the Deliverables as listed in the previous section (Section 3).

On top of the above scope the consultant shall also supply software such as GIS Advanced with the provision of subscription and inclusion of CWD training for 3 to 5 personnel.

#### 5.0 DELIVERABLES

The deliverables below shall be submitted to CWD

Deliverables	Timeline	Submittals/Reports	Timeline Review
Stage 1			
Draft Inception Report which includes, among others, the work plan that identifies in detail the approach and methodologies to be utilized in the study as the title TOR	One (1) month after the receipt of NTP or as prescribed in the Bidding Documents	12 copies of complete draft ring bound with soft copy	Approximately 7 working days
Final Inception Report	One and one half (1.5) month from receipt of NTP or as prescribed in the Bidding Documents	12 copies of complete final inception report ring bound with soft copy	Approximately 7 working days
Draft Final Report	Third (3) month from the receipt of NTP or as prescribed in the Bidding Documents	12 copies of complete draft final report ring bound with soft copy	Approximately 15 working days
Final Report	Before end of 4th (4) month from receipt of NTP or as prescribed in the Bidding Documents	12 copies of complete final report ring bound with soft copy	Approximately 7 working days

#### 6.0 Other Services CWD will be provided.

During inspection CWD will provide one (1) personnel, one (1) service vehicle to guide Consultant in the study area.

**7.0 TERMS AND CONDITIONS SHALL BE IN ACCORDANCE TO RA 9184 and its revised IRR.**

