



REPUBLIKA NG PILIPINAS  
 KAGAWARAN NG KATARUNGAN  
**PANGASIWAAN SA PATALAAN NG LUPAIN**  
**(LAND REGISTRATION AUTHORITY)**  
 East Avenue cor. NIA Road  
 Quezon City

## INVITATION TO BID FOR SUPPLY AND DELIVERY OF ONE (1) SET OF BRAND NEW GNSS RTK SYSTEM AND MECHANICAL TOTAL STATION

1. The **Land Registration Authority (LRA)**, through the **Special Account in the General Fund (Fund 151-Capital Outlay)** intends to apply the sum of **FOUR MILLION FIVE HUNDRED THOUSAND PESOS ONLY (PhP4,500,000.00)**, inclusive of VAT being the ABC to payments under the contract for **Supply and Delivery of One (1) Set of Brand New GNSS RTK System and Mechanical Total Station with Project ID No. LRA BAC-PGSM-2023-08**. Bids received in excess of the ABC shall be automatically rejected at bid opening.
2. The **LRA** now invites bids for the above Procurement Project, Delivery of the Goods shall be within **Forty-five (45) calendar days** upon receipt of an approved Purchase Order in accordance with the Delivery schedule under Section VI Schedule of requirements. The following are the required specifications:

Lot No.	Specification
1	<p>Supply and Delivery of One (1) Set of Brand New GNSS RTK System and Mechanical Total Station</p> <p><b>One (1) Set of Brand New GNSS RTK System and Mechanical Total Station</b></p> <p><b>I. Base and Rover with Controller and Post Processing Software</b></p> <p><b>A. Base Station</b></p> <ol style="list-style-type: none"> <li>1. Position update rate range = up to 50 Hz</li> <li>2. Minimum 336 channels</li> <li>3. GNSS Upgrades: with GPS, GLONASS, Galileo, Beidou, QZSS, L5 , SBAS</li> <li>4. Mobile Satellite Service Option               <ol style="list-style-type: none"> <li>I. Horizontal = at least 2 cm</li> <li>II. Vertical = at least 5 cm</li> </ol> </li> <li>5. HIGH PRECISION STATIC:               <ol style="list-style-type: none"> <li>a. Horizontal = (at least 3mm) + 0.1 ppm</li> </ol> </li> </ol>

b. Vertical = (at least 3.5mm) + 0.4 ppm

6. REAL TIME KINEMATIC POSITIONING:

a. Horizontal = (at least 8mm) + 1 ppm RMS

b. Vertical = (at least 15 mm) +1 ppm RMS

7. TEMPERATURE

a. Operating = - 40 °C to + 65 °C

b. Storage = -40 °C to + 80 °C

8. OPERATION TIME ON INTERNAL BATTERY

a. Base at least 4.8 hrs internal

9. COMMUNICATIONS

a. USB, Lemo (Serial 1), Ethernet, Wi-fi, Bluetooth, Cellular(Internal), NTRIP

b. Data Format (Correction Input / Output) CMR, CMR+, CMRx, RTCM 2.x, RTCM 3

c. Internal memory: minimum 8GB

10. Accessories

a. Heavy Duty Tripod with tribrach

b. Charger (compatible with the receiver)

User's manual, data download cables, connection cables, high-gain antenna, controller

c. adapter

**B. Rover Receiver**

1. Position update rate range = up to 20 Hz

2. With correction back-up feature for RTK up to 5 mins

3. GNSS Upgrades: with GPS, GLONASS, Galileo, Beidou, QZSS, SBAS, L5

4. Correction Services

a. Horizontal = at least 2 cm

b. Vertical = at least 5 cm

5. Inertial Platform (Compensated Surveying)

a. Horizontal = RTK + 8mm/ ° tilt (up to 30 °)RMS

b. Magnetically immune

c. IMU-Based

6. HIGH PRECISION STATIC:

a. Horizontal = (at least 3mm) + 0.1 ppm

b. Vertical = (at least 3.5mm) + 0.4 ppm

7. REAL TIME KINEMATIC POSITIONING:

a. Horizontal = (at least 8mm) + 1 ppm RMS

b. Vertical = (at least 15 mm) +1 ppm RMS

8. Correction Back Up Feature:
  - a. Horizontal = RTK + 10mm/minute RMS
  - b. Vertical = RTK + 20mm/minute RMS
9. TEMPERATURE
  - a. Operating = must operate from -40 °C to + 65 °C
  - b. Storage = could be stored from -40 °C to + 75 °C
10. OPERATION TIME ON INTERNAL BATTERY
  - a. At least 5.5 hrs : for one (1) battery
11. IP Rating: IP68
12. COMMUNICATIONS
  - a. Lemo Serial, WiFi, Bluetooth
  - b. Data Format: CMR+, CMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2
  - c. Integrated radio: 403-473 MHz
  - d. 450MHz Output Power: 2.0W
  - e. Internal memory: minimum 9 GB
13. ACCESSORIES
  - a. One (1) Range Pole with Bipod for Rover
  - b. Two (2) extra batteries
  - c. User's manual, data download cables, charger, antenna

**C. GPS Controller with Field Software**

- a. Environmental specifications (Meets or exceed)
  - I. Operating temperature = must operate from -20 °C to +60 °C
  - II. Storage temperature = must operate from -40 °C to +70 °C
  - III. Humidity 90% RH temp cycle
  - IV. Sand & dust IP6X
  - V. Water Ipx8: immersed in 1 m in water for 30 mins
- b. Electrical specifications
  - I. Processor: 64-bit quad-core
  - II. Memory: minimum of 8 GB RAM
  - III. Storage: minimum of 64 GB
  - IV. Battery life: Medium usage approx. of 5 hours
  - V. Display: 17.78 cm, 1280x800 landscape, 16:10, multipoint capacitive
  - VI. Keyboard: QWERTY or ABCD
  - VII. Audio: speaker and microphone with 3.5 mm stereo headset
  - VIII. Wireless: Bluetooth, Wi Fi, WWAN
  - IX. Expansion: via microSDXC card up to 2 TB
- c. GNSS: Integrated GNSS

d.Sensors: 3-axis accelerometer, magnetic sensor, proximity sensor, ambient light

e. Camera: Rear Camera 8MP autofocus with flash, front cam 2 MP fixed Focus

f. Field Software

Designed to Support Topographic surveys, Staking, control

Powerful COGO routines

Graphical Staking of points, lines arcs and alignments from active maps

#### **D. Post-Processing Software - Perpetual License**

### **II. Mechanical Total Station**

#### **A. General Specifications**

1. Autofocus: Yes
2. Sensitivity of circular level vials on tribrach: 10'/2 mm
3. Tangent Clamps: Yes
4. Display Face 1 and 2: LCD Back-lit (640 x 480 pixel)
5. Processor: Dual Core 800 MHz
6. Point Memory: 512 MB, 4 GB Flash Memory
7. Operating System: Windows Embedded Compact 7
8. Internal Plummet: Optical or Class 2 Laser
  - a. Optical Plummet Magnification: 3x
  - b. Optical Plummet Field of View: 5°
  - c. Minimum Focusing Distance: 0.5m
9. Weight (approx.):
  - a. Main Unit: 4.3kg
  - b. Battery: 0.1kg
  - c. Carrying Case: 3.3kg

#### **B. Distance Measurement**

1. Range
  - a. With single prism 6.25 cm = 5,000 m
  - b. With reflector sheet 5 cm x 5 cm = 300 m
  - c. Reflectorless Mode
    - KGC (90%): Good = 800m, Normal = 500m, Difficult = 250m
    - KGC (18%): Good = 400m, Normal = 300m, Difficult = 235m
2. Accuracy (standard measurement mode)

- a. Prism:  $\pm(2\text{mm} + 2\text{ppm})$
- b. Reflectorless:  $\pm(3 \text{ mm} + 2\text{ppm})$

### 3. Measuring Interval

- a. Prism mode: 1.0s (standard mode); 0.5s (fast standard mode); 0.3s (tracking mode)
- b. Reflectorless mode: 1.0s (standard mode); 0.5s (fast standard mode); 0.3s (tracking mode)

### **C. Angle Measurement**

- 1. Accuracy: 5 second
- 2. Reading System: Absolute encoder
- 3. Circle diameter: 62 mm
- 4. Horizontal/Vertical angle: Diametrical/ Single

### **D. Telescope**

- 1. Tube Length: 128mm
- 2. Magnification: 30x
- 3. Image: Erect
- 4. Effective diameter of objective: 45mm
- 5. EDM Diameter: 50mm
- 6. Field of View:  $1^{\circ}25'$
- 7. Resolving Power: 3"
- 8. Minimum focusing distance: 1.5m
- 9. Laser Pointer: Coaxial Red Light
- 10. Tracklight: Yes
- 11. Reticle Illumination: yes, 4 steps

### **E. Tilt Sensor**

- 1. Type: Dual-axis
- 2. Method: Liquid Electric detection
- 3. Compensation Range:  $\pm 3'$

### **F. Communication**

- 1. Ports: 1 x Serial (RS232C), 2 X USB (host and client)
- 2. Wireless communications: Integrated Bluetooth

### **G. Power**

- 1. Hot swappable Li-ion battery (x2) with output voltage of 3.6V
- 2. Operating Time

- a. Continuous angle-only measurement: 14 hours
- b. Distance/angle measurement/AF every 30 s: 12 hours
- c. Continuous distance/angle measurement: 7 hours

3. Charging Time, full charge both batteries: approx. 6 hours

#### **H. Environmental**

1. Operating Temperature Range: -20 °C to +50 °C
2. Storage Temperature Range: -25 °C to +60 °C
3. Atmospheric Correction
  - a. Temperature Range: -40 °C to +60 °C
  - b. Barometric Pressure: 400 mmHg to 999 mmHg or 533 hPa to 1,332 hPa
4. Dust and Water Protection: IP66

#### **I. Certification**

1. Class B Part 15 FCC certification, CE Mark approval, RCM Mark, IEC60825-1 am 2007
2. Prism/Reflectorless Mode: Class 1 laser

#### **J. Accessories**

1. Carrying case
2. Tripod
3. Prism
4. Range Pole
5. User manual

### **III. OTHER CONDITIONS**

#### **A. Warranty**

GNSS Receivers and Controller: 1 year warranty

Mechanical Total Station: 1 year warranty

Service Warranty: 1 year

#### **B. Technical Support: phone access and site visit**

#### **C. Training: 5 days in person training**

**D. Submit a certification from the manufacturer that the supplier is an authorized dealer of genuine product.**

#### **E. Main equipment must have the same brand**

	<p><b>F. Delivery Period : within forty-five (45) calendar days from receipt of purchase order</b></p> <p><b>G. Supplier must present a certification/Notice to Proceed (NTP) from other Government Agencies that it has previously supplied the said equipment to the Government Agency</b></p> <p><b>H. Prior inspection and testing of the product before delivery to confirm their conformity to the technical specifications</b></p>
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Bidders should have completed, within the past five (5) *years* from the date of submission and receipt of bids, a contract similar to the Project. The description of an eligible bidder is contained in the Bidding Documents, particularly, in Section II (Instructions to Bidders).

3. Bidding will be conducted through open competitive bidding procedures using a non-discretionary “*pass/fail*” criterion as specified in the 2016 revised Implementing Rules and Regulations (IRR) of Republic Act (RA) No. 9184.

Bidding is restricted to Filipino citizens/sole proprietorships, partnerships, or organizations with at least sixty percent (60%) interest or outstanding capital stock belonging to citizens of the Philippines, and to citizens or organizations of a country the laws or regulations of which grant similar rights or privileges to Filipino citizens, pursuant to RA No. 5183.

4. Prospective bidders may obtain further information from the **LRA-Bids and Awards Committee (BAC) Secretariat for Non-Infrastructure** through the contact details given below and inspect the Bidding Documents as posted on the websites of the LRA and the Philippine Government Electronic Procurement System (PhilGEPS).
5. A complete set of Bidding Documents may be acquired by interested Bidders on **October 12, 2023 to November 06, 2023** from the given address below upon payment of the applicable fee for the Bidding Documents, pursuant to the latest Guidelines issued by the GPPB, in the amount of **Four Thousand Five Hundred Pesos (P4,500.00)** at the LRA Cashier located at the One Stop Shop (OSS). The **LRA** shall allow the bidder to present its proof of payment for the fees by presenting it in person.
6. The **Land Registration Authority** will hold a **Pre-Bid Conference on October 24, 2023, 9:30 A.M., at 4<sup>th</sup> Floor, LRA Conference Room, LRA Building, East Avenue corner NIA Road, Diliman, Quezon City**, which shall be open to prospective bidders and/or through videoconferencing/webcasting via *Zoom application* using the following:

Meeting ID : 897 5212 6189  
Security Passcode : 615349

7. **Bids must be duly received** by the BAC Secretariat through manual submission at the address below on or before **November 6, 2023, 12:30 P.M. at 4<sup>th</sup> Floor, LRA Conference Room, LRA Building, East Avenue corner NIA Road, Diliman, Quezon City. Late bids shall not be accepted.**
8. All Bids must be accompanied by a bid security in any of the acceptable forms and in the amount stated in **ITB** Clause 14.
9. Bid opening shall be on **November 6, 2023, 1:00 P.M. at 4<sup>th</sup> Floor, LRA Conference Room, LRA Building, East Avenue corner NIA Road, Diliman, Quezon City.** Bids

will be opened in the presence of the bidders' representatives who choose to attend the activity.

**For the purpose of constituting a quorum**, either the physical and virtual presence of the BAC members shall be considered pursuant to GPPB Resolution No. 09-2020.

10. The Land Registration Authority reserves the right to reject any and all bids, declare a failure of bidding, or not award the contract at any time prior to contract award in accordance with Sections 35.6 and 41 of the 2016 revised IRR of RA No. 9184, without thereby incurring any liability to the affected bidder or bidders.
11. For further information, please refer to:

**ATTY. RONALD A. RICABLANCA**  
*BAC-PGSM Secretariat Member*  
*Rm. 402, Legal Division*  
*Mobile No. 0918-3767390*

**EUNALIZE E. ZAPANTA**  
*BAC-PGSM Secretariat Member*  
*Room 102, Office of the General Services Division*  
*Mobile No. 0930-1160454*

12. For viewing and downloading of Bidding Documents you may visit:  
<http://notices.philgeps.gov.ph/>  
<https://lra.gov.ph/bids-opportunities/>

*Date Issuance of Bidding Documents:*

*12 October 2023 at Quezon City*



**ATTY. TRISTAN E. DE GUZMAN**  
*Chairperson, LRA Bids and Awards Committee*  
*East Avenue corner NIA Road, Diliman, Quezon City*