GOVERNMENT OF ASSAM
PROJECT MANAGEMENT UNIT
ASSAM PROJECT ON FOREST AND BIODIVERSITY CONSERVATION SOCIETY (APFBCS)
ARANYA BHAWAN, PANJABARI, GUWAHATI – 781037
Tel: +91 361-2733917; **Website:** www.apfbcs.nic.in ; **Email:** pd@apfbcs.in ;

Minutes of the Pre-bid meeting for 'Procurement of one (1) set of drone and related payload and other items for Forest Resource Assessment.'

Date: 30.08.2024 *Time: 3:00 PM* *Venue: Wildlife Conference Hall, Aranya Bhawan*

IFB No. APFBC/PMU/Phase-II/PD/2023/326/Part-II/5, dated 14th August 2024.

The following APFBCS officials and prospective vendor representatives were present at the pre-bid meeting:

Officials of the APFBCS:

1. Shri Sandeep Kumar, IFS : PCCF (Wildlife) & CWLW, Assam and Project Director (PD), APFBCS
2. Shri Prashant Dhanda, IFS : Activity Director (IT & GIS), O/o the PCCF & HoFF, Assam
3. Smt. Rehena Sultana : Procurement Executive, PMU, APFBCS

Representative of the Firm (Physically Present):

1. Shri Ramanjeet Singh : M/s ideaForge Technology Ltd.

Representative of the Firm (Virtually Present):

1. Shri Sabharinath Sadasivam : M/s Akash Aerospace

*Attendance sheet of the meeting is enclosed at **Annex-1**.*

1. The Project Director welcomed all participants to the pre-bid meeting and briefly outlined the purpose of inviting vendors to participate in the procurement process for drones and related items.
2. During the meeting, APFBCS officials addressed queries from the representatives of the attending firms. Responses to the questions raised during the meeting, as well as those received via email, have been included in the minutes, which are enclosed as Annex-2.

Minutes approved

Sd/-
Project Director, PMU, APFBCS

Memo No: APFBC/PMU/Phase-II/PD/2023/326/Part-II/55 **Dated Guwahati the 23rd September, 2024**

Copy to:

1. All concerned officials of the APFBCS joined the meeting.
2. Email to the Bidders: **(1) M/s ideaForge Technology Ltd.**, Email: tenders@ideaforgetech.com; ramanjeet.singh@ideaforgetech.com; clarence.beecham@ideaforgetech.com; richa.chaudhary@ideaforgetech.com; sushma.nanaware@ideaforgetech.com; mukul.tiwari@ideaforgetech.com; nitin.sharma@ideaforgetech.com; **(2) M/s Aakash Aerospace**; Email: sabharinath@akashaerospace.com; saravanan@akashaerospace.com; akshaya@akashaerospace.com.

Annexe-1

Attendance Sheet for the Pre-Bid Meeting on 'Procurement of one (1) set of drone and related payload and other items for Forest Resource Assessment'.

Date: 30th August 2024

Time: 3.00 PM **Venue: Wildlife Conference Hall, Aranya Bhawan**

Sl.	Name of the Attendant	Designation & Organization	Email ID & Contact no.	Signature
1.	Sandeep Kumar, IFS	Project Director, APFBC Society	pd@apfbcs.in	
2.	Prashant Dhanda, IFS	Activity Director (IT & GIS) O/o PPCF & HoFF, Assam	prashant.dhanda@gmail.com	30/8
3.	Ramanjeet Singh	~~ADG~~ AGM / Ideaforge Technology	Ramanjeet.singh@ideaforgetech.com	
4.	Sabharinath S	Akash Aerospace	sabharinath@akashaerospace.com	Joined online
5.	Rehana Sultana	PE, APFBC Society	-	30/08/24
6.				
7.				
8.				
9.				
10.				
11.				
12.				

Annexure-2

Queries and Responses on the APFBC/PMU/Phase-II/PD/2023/326/Part-II/5, Dated Guwahati the 14th August 2024for 'Procurement of one (1) set of drone and related payload and other items for Forest Resource Assessment'.

#	Reference	Existing Clause	Queries	PMU's Responses
1.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 55	36. Free Hand Annotation: Capability to annotate a desired location on the map screen	Minimum or maximum distance to be covered by the drone when operated by Free Hand Annotation mode	Free hand annotation is a feature in GCS software to mark (geotag) locations on map. This feature can be used to divert drone to marked location and/or marked as a reference which can be referred latter for study especially in surveillance use case. The free had annotation is not a flight mode, the minimum distance can be any distance defined by the drone operator and maximum distance would be governed by the endurance of the drone.
2.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 54	1. Endurance: 60 Minutes @AMSL or more	Minimum Endurance requirement of 60 minutes is to be tested in operational altitude or maximum Altitude (120meter) and in normal wind speed or at adverse or maximum wind resistance (10 m/s). Is there any relaxation for endurance when operating with maximum payload, maximum Altitude.	No Change
3.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 1. Key Considerations for Drones, Page no. 53	5. Payload Capacity-Adequate payload capacity for carrying additional sensors or equipment like loudspeaker, laser devices.	Can the sensors and payloads be interchangeable and selected based on the mission requirements or to be integrated permanently?	The payload should be Interchangeable.
4.	Section III –Evaluation and Qualification Criteria; Pre-Qualification Criteria, Page no. 26 & 27	3.2 Minimum Annual Turnover from supply of goods & 4.1 Similar Experience	Is there any relaxation for a startup regarding prior experience of handling drone projects and 3 years annual turnovers	No Change
5.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 6. Product demonstration and evaluation checklist, Page no. 58	2. DGCA type certification	Is Type Certificate mandatory for the drone or any exemption for a startup or when Type Certificate Application is in process?	No Change

#	Reference	Existing Clause	Queries	PMU's Responses
6.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration, Page no. 53	1. Key Considerations for Drones: 2. Battery Life and Swappability • Lithium-polymer (LiPo) batteries with sufficient capacity for extended flights.	As the batteries composition from Li-Po to Li-ion vary OEM to OEM based on their design and research, we request to give option to offer either Li-Po or Li-ion based battery as OEM standards	Both are acceptable. Bidders are expected to meet the performance standards set forth in the tender.
7.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 54	3. General Specifications of Drone- 1. Endurance 60 Minutes @AMSL or more	Generally, with a LiDAR payload, UAV's endurance is reduced significantly due to increased weight and power consumption. LiDAR systems are heavier and require more energy than standard surveillance equipment, causing the UAV's batteries to deplete faster. The added weight also increases the power needed to maintain flight, further reducing available flight time. Additionally, the aerodynamic profile is affected, increasing air resistance and energy demands. To ensure safe operations and protect the UAV's components, we must limit flight duration to 30 minutes when using LiDAR. This ensures optimal performance without compromising safety or risking unscheduled landings due to battery depletion. Hence, it is requested to modify the clause as"1 Endurance: 30 Minutes @AMSL or more"	The endurance requirements have been kept, assuming lighter payloads. If the payloads supplied are heavier, then the variation in endurance requirement can be accepted, provided that the sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.
8.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 54	3. General Specifications of Drone- 6. Wind resistance Max 12m/s	Kindly confirm the region of operation of the UAV here. As a general practice, the wind resistance/speed is kept in a range of 7m/s to 10m/s for the said category of UAVs. Therefore, we would like to recommend including the range and modify the clause as "Wind Resistance: Upto 7-10m/s.", if the operational region is not a limiting factor to the clause i.e. it is not an area which witnesses frequent gusts of wind. Please confirm.	The variation in requirement can be accepted provided that the drone and sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.
9.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 56	3. General Specifications of Drone- 65. Remote Video capability with payload and NAV controls and integration to Command Control	Since the requirement is for mapping rather than surveillance, and mapping does not involve remote video capabilities or navigation controls, it is requested that this	Accepted

#	Reference	Existing Clause	Queries	PMU's Responses
		station-Live feed Integration/display on screen, phone and tablet	clause be deleted. The inclusion of remote video and NAV controls is not relevant to the mapping objectives and therefore does not align with the project's needs.	
10.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications: Payload-Airborne UDAR Module and 26MP Survey grade camera (Sensor) with Trimble APX-15	The 26 MP survey-grade camera with the Trimble APX-15 sensor is a particular model and is very OEM-specific and may limit participation from other manufacturers. We recommend making the camera requirement more generic, such as a 24 MP survey-grade camera. A 24 MP camera also meets the high-resolution needs for accurate mapping and surveying and is more widely available across different OEMs. This change would encourage broader participation from various vendors, fostering competitive bidding.	Accepted.
11.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications: 2. Precision Mapping-Laser line number Equivalent to 64-beam	Laser line number, FoVs, these all are low level design specs which might vary OEM wise and it is also understood that the primary goal is to attain accurate data, so it is advisable to grant design flexibility of payload to Original Equipment Manufacturers (OEMs) in terms of Laser line numbers and FoVs& the flexibility to employ varied combinations that best meet the stipulated requirements wrt accurate and precise data.	The variation in requirement can be accepted provided that the drone and sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.
12.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications:2. Precision Mapping-GNSS signal type-GPSL1/L2/L5 GLOSNASSL1/L2 BDS B1/B2/B3 GAL E1/Esa/Sb	Our LiDAR payload already supports a robust set of GNSS signals, including GPS L1C/A and L2C, GLONASS L1OF and L2OF, Galileo E1B/C and E5b, BeiDou B1I and B2I, QZSS L1C/A L1S L2C and SBAS L1C/A. This configuration covers multiple frequencies across all major constellations, ensuring high accuracy and reliability for precision mapping. Adding more frequencies like GPS L5, BeiDou B3, or Galileo E5a would not significantly enhance performance and is not necessary for achieving the desired mapping accuracy.	The variation in requirement can be accepted provided that the drone and sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.

#	Reference	Existing Clause	Queries	PMU's Responses
			Additionally, different OEMs have different configurations, but our module is tailored to meet high precision standards effectively. hence, it is requested to kindly change this clause as "2. Precision Mapping : GNSS signal type GPS L1C/A L2C, GLO L1OF L2OF, GAL E1B/C E5b, BDS B1I B2I, QZSS L1C/A L1S L2C, SBAS L1C/A or better"	
13.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications:Built In CAMERA SPECS-FOV 70^0circular view	Laser line number, FoVs, these all are low level design specs which might vary OEM wise and it is also understood that the primary goal is to attain accurate data, so it is advisable to grant design flexibility of payload to Original Equipment Manufacturers (OEMs) in terms of Laser line numbers and FoVs& the flexibility to employ varied combinations that best meet the stipulated requirements wrt accurate and precise data.	This requirement is for LIDAR, however, the variation in requirement can be accepted provided that the drone and sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.
14.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications:Built-in camera FOV 83 Degree	Please clarify the difference between the 70^0circular view Fov and 83 Degree Built-in camera FOV.	These requirements are FOV's for Laser and RGB sensors respectively. However, the variation in requirement can be accepted provided that the drone and sensor demonstrates the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration.
15.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 57	4. Payload Specifications:Built-in camera Specs-Effective Pixel 26 MP	Camera specifications vary from one Original Equipment Manufacturer (OEM) to another. As long as the desired outcome and performance standards are not compromised, we recommend allowing design flexibility for payloads. By not restricting the specifications to a particular OEM, we can ensure that the tender is more inclusive, encouraging broader participation and fostering competition. This approach not only provides more options to meet the	Accepted.

#	Reference	Existing Clause	Queries	PMU's Responses
			technical requirements but can also lead to innovative solutions from different manufacturers. Hence, it is requested to make this requirement as Optional or amend this clause to "24 MP or more" as this flexibility will ultimately benefit the project by leveraging the best available technologies across various OEMs.	
16.	Section VII – Schedule of Requirements; 2. Technical Specifications and Product Demonstration, Page no. 58	6. Product demonstration and evaluation checklist: 13. Wherever required, is able to livestream the Drone footage and possesses the ability to integrate with the Dashboard	Given that the primary requirement is mapping rather than surveillance, we kindly request the omission of this clause from the tender. This adjustment will better align the specifications with the core objectives of the project, ensuring that the focus remains on achieving optimal mapping results.	Accepted

Sd/-
Project Director, PMU, APFBC