

**Minutes of the Pre-bid meeting for 'Procurement of one (1) set of drone and related payload and other items for plantation monitoring.'**

*Date:* 30.08.2024

*Time:* 3:00 PM

*Venue:* Wildlife Conference Hall, Aranya Bhawan

**IFB No. APFBC/PMU/Phase-II/PD/2023/326/Part-III/5, dated 14<sup>th</sup> 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-III/62 Dated Guwahati the 23<sup>rd</sup> 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](mailto:tenders@ideaforgetech.com); [ramanjeet.singh@ideaforgetech.com](mailto:ramanjeet.singh@ideaforgetech.com); [clarence.beecham@ideaforgetech.com](mailto:clarence.beecham@ideaforgetech.com); [richa.chaudhary@ideaforgetech.com](mailto:richa.chaudhary@ideaforgetech.com); [sushma.nanaware@ideaforgetech.com](mailto:sushma.nanaware@ideaforgetech.com); [mukul.tiwari@ideaforgetech.com](mailto:mukul.tiwari@ideaforgetech.com); [nitin.sharma@ideaforgetech.com](mailto:nitin.sharma@ideaforgetech.com), (2) M/s **Pan India Consultants Pvt. Ltd.**; Email: [navpreetkaur@panindiagroup.com](mailto:navpreetkaur@panindiagroup.com); [vivekbansal@panindiagroup.com](mailto:vivekbansal@panindiagroup.com); [vibhorgoel@panindiagroup.com](mailto:vibhorgoel@panindiagroup.com); [kailashsingh@panindiagroup.com](mailto:kailashsingh@panindiagroup.com); [ambrishupadhyay@panindiagroup.com](mailto:ambrishupadhyay@panindiagroup.com), (3) M/s **Asteria Aerospace Limited**; Email: [sonam.saroha@asteria.co.in](mailto:sonam.saroha@asteria.co.in); [vivek.sharma@asteria.co.in](mailto:vivek.sharma@asteria.co.in), (4) M/s **Aakash Aerospace**; Email: [sabharinath@akashaerospace.com](mailto:sabharinath@akashaerospace.com); [saravanan@akashaerospace.com](mailto:saravanan@akashaerospace.com); [akshaya@akashaerospace.com](mailto:akshaya@akashaerospace.com), (5) M/s **Indo Wings Private Limited**; Email: [tenders@indowings.com](mailto:tenders@indowings.com); (6) M/s **Tunga Aerospace Industries (P) Ltd**, Email: [ajit.keshav@tungasystems.com](mailto:ajit.keshav@tungasystems.com); [ramesh.madhavan@tungasystems.com](mailto:ramesh.madhavan@tungasystems.com).

**Annexure-2**

**Queries and Responses on the IFB No.APFBC/PMU/Phase-II/PD/2023/326/Part-III/5, Dated Guwahati the 14<sup>th</sup>August 2024 for  
'Procurement of one (1) set of drone and related payload and other items for Plantation monitoring'.**

#	Reference	Existing Clause	Queries	PMU's Responses
1.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	Pt no. 2: Endurance- Minimum 60 minutes or more with either Day/Thermal/Mapping payload (up to 1000 m (3280 ft.) AMSL Take-off)	It is requested to kindly consider Endurance for a Minimum of 40 minutes.	No change.
2.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	Pt no. 3: Range of live transmission (LOS)(un-obstructed & interference free)-10 km (6.2 miles) or more up to 1000m AMSL up to 800m AGL	It is requested to kindly consider the Range of Live Transmission up to 5 km.	The range of live transmission is up to the radial distance of 5kms and not 10 kms.
3.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	Pt no. 5: IP Rating-IP54 rating or better	It is requested to kindly consider the IP Rating as IP53.	Accepted.
4.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	2: Endurance- Minimum 60 minutes or more with either Day/Thermal/Mapping payload (up to 1000 m (3280 ft.) AMSL Take-off)	AAL request you to amend this requirement to 40 Kms.	No change.
5.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of	3. Range of live transmission (LOS)(un-obstructed & interference free)-10 km (6.2 miles) or more up to 1000m AMSL up to 800m AGL	AAL request you to amend this requirement to 5Kms	The range of live transmission is up to the radial distance of 5kms and not 10 kms.

#	Reference	Existing Clause	Queries	PMU's Responses
	Drone; Page no. 54			
6.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	5. IP Rating-IP54 rating or better	AAL drones and packaging are certified for IP53 which protect them from dust and drizzle. Your requirement can suffice with IP53. We request you to amend the IP rating requirement for both specifications to IP53	Accepted.
7.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	15. Packaging and Storage-Waterproof Backpacks to carry all mission critical components with IP66 or better rating for dust and drizzle protection.		No change.
8.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 54	23. 3D Maps: Switchable between 2D/3D map views, capability to tilt/rotate 3D maps as per user input	Please keep 3D maps availability as Desirable requirements	No change.
9.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 56	61. Auto Tracking Comm Box-Auto tracking directional antenna	Please remove this requirement	No change.
10.	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 4. Payload Specifications, Page no. 57	Resolution- 4608 x 3456 (RGB)	AAL request you to give the sensor information to the vendors to get more clarity.	Specifications for the same have been already included.  The sensors should be able to meet desired use cases.
11.	Section VII – Schedule of Requirements;	Minimum threshold – 12W Optimal Recommendation – 15W	AAL request you to give the sensor information to the vendors to get more clarity	Specifications for the same have been already included.

#	Reference	Existing Clause	Queries	PMU's Responses
	Technical Specifications and Product Demonstration; 4. Payload Specifications- External Power Spectral Band, Page no. 57	-Blue (475nm wavelength, 40nm bandwidth), Green (550nm wavelength, 40nm bandwidth), Red (668nm wavelength, 10nm bandwidth), Red Edge (735nm wavelength, 10nm bandwidth), Near Infrared (790nm wavelength, 40nm bandwidth). RGB (16Mpx - Rolling Shutter)	AAL request you to amend this requirement with the below mentioned one's- Blue (475 nm center, 32 nm bandwidth), Green (560 nm center, 27 nm bandwidth), Red (668 nm center, 14 nm bandwidth), Red Edge (717 nm center, 12 nm bandwidth), Near-IR (842 nm center, 57 nm bandwidth)	The sensors should be able to meet desired use cases. As long as the sensor specifications is able to demonstrate the desired use cases to the `satisfaction of the panel of experts chosen for the evaluation of the product demonstration, minor variations from given requirements are acceptable.
12	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 55	34. Free Hand Annotation Capability to annotate a desired location on the map screen	AAL request the department to give the clarity on this requirement	Free Hand Annotation is the feature required in the GCS software. It's useful for marking locations (geotag) using point or polygon tool on map. It's primarily used for diverting the drone to the marked location and/or marking locations just for reference which can be referred latter for study especially in surveillance use case.
13	Section VII – Schedule of Requirements; Technical Specifications and Product Demonstration; 3. General Specifications of Drone; Page no. 55	38. Weather Forecast-Capable to provide information about the weather condition of the HOME location to the users based on the weather forecast of a given day and time.	Please remove this requirement	Accepted
14	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration, Page no. 53	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.
15	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 56	63. Remote Video capability with payload and NAV controls and integration to Command Control station: Live feed Integration/display on screen, phone and tablet; Receiving live video from UAV at a distance of 5 Km (3.1 miles) (un-obstructed & interference free); Capability to display	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 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	Accepted

#	Reference	Existing Clause	Queries	PMU's Responses
		video, map and OSD (On screen display) similar to GCS; Capability to record, playback and freeze the imagery received from UAV; Capability to control the payload and UAV navigation.	needs.	
16.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 4. Payload Specifications, Page no. 57	External Power Spectral Band-Blue (475nm wavelength, 40nm bandwidth), Green (550nm wavelength, 40nm bandwidth), Red (668nm wavelength, 10nm bandwidth), Red Edge (735nm wavelength, 10nm bandwidth), Near Infrared (790nm wavelength, 40nm bandwidth).RGB (16Mpx - Rolling Shutter)	Since the ultimate objective is to monitor plantation growth and health. So these can be achieved by mostly used vegetation index like NDVI, RECI, NDRE, MSAVI, GNDVI, NDWI, OSAVI, GCI etc. These indexes do not require Blue Wavelength. Incorporating such sensors with Blue wavelength would increase the payload cost without providing significant benefits. Therefore, it is recommended to make the inclusion of blue wavelength sensors an optional requirement, allowing for the use of more suitable and cost-effective solutions that align better with the project's goals	As long as the sensor specifications is able to demonstrate the desired use cases to the satisfaction of the panel of experts chosen for the evaluation of the product demonstration, minor variations from given requirements are acceptable.
17.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 4. Payload Specifications, Page no. 57	Support RTK/PPK-Yes	As the requirement is to map a forest, incorporating RTK (Real-Time Kinematic) or PPK (Post-Processed Kinematic) technology would add unnecessary costs. RTK and PPK systems are designed to measure minimal changes with high precision and this technology is mostly used for high accuracy requirement (<10cm). Given the nature of the forest environment, such high precision may not yield significant benefits. Therefore, it is requested to make this clause optional, allowing for more cost-effective and practical mapping solutions that are better suited to the project's objectives	No Change
18.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 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.

#	Reference	Existing Clause	Queries	PMU's Responses				
	Page no. 58							
19.	Invitation for Bid (IFB), sl. 3; Page no. 3	A complete set of Bidding Document may be purchased by interested Bidders on submission of a written application to the above and upon payment of a non-refundable fee of INR 3,540/- (Fee INR 3,000/- plus GST INR 540/-) only in the form of Demand Draft in favour of the "Assam Project on Forest and Biodiversity Conservation- Phase II" payable at Guwahati, Assam. Bidding Document may also be downloaded free of cost from the website of APFBCS viz. www.apfbcn.in. In case the Bidding Document is downloaded from website, the non-refundable fee is not required.	As per government MSME or NSIC registered company can be exempt for purchase of document. Request you to please confirm.	Not Accepted				
20.	Invitation for Bid (IFB), sl. 5; Page no. 3	<p>Bid must be delivered to the above office on or before 14:00 Hours IST on 16th September 2024 and must be accompanied by Bid Security of the sum as under:</p> <table border="1"> <thead> <tr> <th>Sl.</th> <th>Bid Security Amount in Indian Rupees</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>INR 0.07 Million</td> </tr> </tbody> </table>	Sl.	Bid Security Amount in Indian Rupees	1	INR 0.07 Million	As per government MSME or NSIC registered company can be exempt for a bid security. Request you to please confirm.	As per AFD, Feb 2024 Procurement Guidelines (3.2.8 Bid securities), states, "It is recommended to request a bid security for the procurement of works, plants, equipment or goods. It is not recommended in the case of Contracts for consulting services. Instead of a bid security, the Contracting Authority may require Bidders to sign a declaration acknowledging that if they (i) withdraw or modify their Bids during the validity period, or (ii) if awarded the Contract, fail to sign it, or fail to submit the performance security in a timely manner, then the Bidder shall be considered ineligible to bid for any Contract with the Contracting Authority for the period specified in the Procurement Documents." This is also corroborated by Rule 170 of GFR.
Sl.	Bid Security Amount in Indian Rupees							
1	INR 0.07 Million							

#	Reference	Existing Clause	Queries	PMU's Responses
21.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 56	Drone output-Video (mp4)/photo (JPEG/PNG) / orthomosaic (geotiff) /Digital Terrain Model (geotiff) / Digital Surface Model (geotiff)	For the video and photo output we can able to give it to you but for generating the Ortho mosaic / DTM / DSM output, there is a special post-processing software with paid license subscription. Please confirm whether we need to provide the software with the license and subscription as well with the Aerial Vehicle Systems.	Photogrammetry software for post processing is not required.
22.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 55	34. 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.
23.	Section VII – Schedule of Requirements; 2. Technical Specifications and product demonstration: 3. General Specifications of Drone, Page no. 54	2. Endurance: Minimum 60 minutes or more with either Day/Thermal/Mapping payload (up to 1000 m (3280 ft.) AMSL Take-off)	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.
24.	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.

#	Reference	Existing Clause	Queries	PMU's Responses
25.	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
26.	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

**Sd/-**  
**Project Director, PMU, APFBC**