STATE COUNCIL OF SCIENCE, TECHNOLOGY & ENVIRONMENT MEGHALAYA

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(An Autonomous Body of the Government of Meghalaya for Promotion of Science & Technology)

Meghalaya State Housing Financing Cooperative Society Ltd., Nongrim Hills, Bethany Hospital, Shillong -793003

No. CST 5/2019/60 **Dated Shillong, the 9th December, 2019.**

INVITATION FOR QUOTATIONS FOR SUPPLY OF UNMANED AIRCRAFT VEHICLE (UAV)/DRONES AND MAPPING SOFWARES FOR UAV/DRONE

Dear all,

1. You are invited to submit your most competitive quotation from OEM/Authorized Dealers for the following goods with item wise detailed specifications given at **Annexure I,**

Sr. No	Item Name	Quantity	Place of Delivery
1	**Advanced Drone -1 with compatible Tablet device**	1	State Council of Science Technology & Environment (SCSTE) Meghalaya, Meghalaya State Housing Financing Society Ltd., Nongrimhills, Shillong-793003
2	**Advanced Drone -2 compatible Tablet device**	1	
3	**Basic Drone compatible Tablet device**	1	
4	**Mapping Software**	1	

2. **Quotation**

2.1 The contract shall be for the full quantity as described above.

2.2 Corrections, if any, shall be made by crossing out, installing, dating and re writing.

2.3 Double Bid: Technical Bid and Financial Bid should enclosed in separate sealed envelopes and both the envelopes should be put inside a sealed cover/envelop. The address of the firm submitting the quotation and the Officer to whom the quotation is addressed must appear distinctly on sealed covers

2.4 All duties and other levies payable by the supplier under the contract shall be included in the unit Price.

2.5 Applicable taxes shall be quoted separately for all items.

2.6 The prices quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.

2.7 The Prices should be quoted in Indian Rupees only.

2.8 Bidder have to quote for all the items, otherwise the bid will be disqualified

2.9 Bidders must submit valid authorization letter/ dealership certificate

2.10 Bidders must submit similar order copies from Central Govt/State Govt organization

3. Each bidder shall submit only one quotation.

4. Quotation shall remain valid for a period not less than **45** days after the last date of quotation submission.

5. Evaluation of Quotations: The Purchaser will evaluate and compare the quotations determined to be Substantially responsive i.e. which

5.1 are properly signed; and

5.2 Confirm to the terms and conditions, and specifications.

6. The Quotations would be evaluated for all items together.

7. Award of contract The Purchaser will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the best evaluated quotation price.

7.1 Notwithstanding the above, the Purchaser reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of Contract.

7.2 The bidder whose bid is accepted will be notified of the award of contract by the Purchaser prior to expiration of the quotation validity period. The terms of the accepted offer shall be Incorporated in the purchase order.

8. Payment shall be made in Indian Rupees as follows:

Payment Description	**Expected Delivery Period (in Days)**	**Payment Percentage**
Satisfactory Acceptance	45	100

9. Liquidated Damages will be applied as per the below:
Liquidated Damages Per Day Min %:0.01
Liquidated Damages Max %:5

10. All supplied items are under warranty of **12** months from the date of successful acceptance of items and AMC/Others is **.**

11. You are requested to provide your offer latest by **11:30** hours on 15th January, **2019.**

12. Detailed specifications of the items are at Annexure I.

13. Training Clause : Training have to be provided by the supplier

15. Testing/Installation Clause : Installation have to be done by the supplier

16. Following documents must be accompanied with the quotation : (all documents must be signed & seal from authorize person)

- Copy of GST certificate.
- Trade Licence (upto date)
- Purchase order copy of similar equipment to any Government organization.
- Information brochures/ Product catalogue, if any clearly indicating the model quoted for.
- Valid dealership/authorization certificate
- Certificate of NPNT compliance issued by DGCA
- Self – Declaration that the bidder's business activities are not suspended or debarred from public procurement by the State Government of Meghalaya, any other State Govt. or Govt. of India.

17. **Legalities to be adhered:**

- The vendor should be able to provide Equipment Type Approval (ETA) certificate on demand by the purchaser.
- The vendor should facilitate the purchaser for submitting the application for UNI in Digital Sky platform of DGCA.

18. **Sealed quotation to be submitted/ delivered at the address mentioned below:**

Office of the State Council of Science Technology & Environment (SCSTE) Meghalaya
C/O Meghalaya State Housing Financing Cooperative Society Ltd., Building
Nongrim Hills, Shillong.
East Khasi Hills District.
Meghalaya-793003
Contact No. 0364-2522077
Email ID: scste-meg@gov.in/stcouncilmegh@yahoo.com

We look forward to receiving your quotation and thank you for your interest in this project.

Sd/-
(Cyril V.D. Diengdoh, IAS)
Member- Secretary,
State Council of Science Technology & Environment,
Meghalaya

Annexure I

Item Name	Item Description/Specification	Item Quantity
1. Advanced Drone -1 with compatible Tablet device	Max takeoff weight: 900 gm Diagonal distance: min 350 mm Max Ascent Speed : 5 m/s (S-mode), 4 m/s (P-mode) Max Descent Speed : 3 m/s (S-mode), 3 m/s (P-mode) Max Speed (near sea level, no wind) : 72 kph (S-mode) Max Service Ceiling Above Sea Level : 6000 m Max Flight Time (no wind) : 31 minutes (at a consistent 25 kph) Max Hovering Time (no wind): 29 minutes Max Flight Distance (no wind): 18 km (at a consistent 50 kph) Max Wind Speed Resistance: 29–38 kph Max Tilt Angle: 35° (S-mode, with remote controller) 25° (P-mode) Max Angular Velocity: 200°/s Operating Temperature Range: -10°C to 40°C Operating Frequency: 2.400 - 2.483 GHz, .725 - 5.850 GHz Transmission Power (EIRP): 2.400 - 2.483 GHz, FCC：≤26 dBm, CE：≤20 dBm. SRRC：≤20 dBm, IC：≤20 dBm, 5.725-5.850 GHz, FCC：≤26 dBm, CE：≤14 dBm, SRRC：≤26 dBm GNSS: GPS+GLONASS Hovering Accuracy Range : Vertical:± 0.1 m (when vision positioning is active), ± 0.5 m (with GPS positioning) Horizontal:: ± 0.3 m (when vision positioning is active), ± 1.5 m (with GPS positioning) Internal Storage: :8 GB SENSING SYSTEM Sensing System :Omnidirectional Obstacle Sensing[1] Forward: Precision Measurement Range: 0.5 - 20 m, Detectable Range: 20 - 40 m, Effective Sensing Speed: ≤ 14m/s, FOV: Horizontal: 40°, Vertical: 70° Backward: Precision Measurement Range: 0.5 - 16 m, Detectable Range: 16 - 32 m, Effective Sensing Speed: ≤ 12m/s, FOV: Horizontal: 60°, Ve/rtical: 77° Upward: Precision Measurement Range: 0.1 - 8 m Downward: Precision Measurement Range: 0.5 - 11 m, Detectable Range: 11 - 22 m Sides: Precision Measurement Range: 0.5 - 10 m, Effective Sensing Speed: ≤ 8m/s, FOV: Horizontal: 80°, Vertical: 65° Operating Environment: orward, Backward and Sides:, Surface with clear pattern and adequate lighting (lux > 15) Upward:, Detects diffuse reflective surfaces (>20%) (walls, trees, people, etc.), Downward: Surface with clear pattern and adequate lighting (lux > 15), Detects diffuse reflective surfaces (>20%) (walls, trees, people, etc.) CAMERA Sensor: 1/2.3" CMOS Effective Pixels: 12 million Lens: FOV: about 83° (24 mm); about 48° (48 mm） 35 mm Format Equivalent: 24-48 mm Aperture: f/2.8 (24 mm)–f/3.8 (48 mm) Shooting Range: 0.5 m to ∞ ISO Range Video:100-3200 Photo:100-1600 (auto), 100-3200 (manual) Shutter Speed: Electronic Shutter: 8–1/8000s Still Image Size :4000×3000 Still Photography Modes: Single shot Burst shooting: 3/5/7 frames Auto Exposure Bracketing (AEB): 3/5 bracketed frames at 0.7 EV Bias Interval (JPEG: 2/3/5/7/10/15/20/30/60s RAW:5/7/10/15/20/30/60s) Video Resolution: 4K: 3840×2160 24/25/30p	1

	2.7K: 2688×1512 24/25/30/48/50/60p FHD: 1920×1080 24/25/30/48/50/60/120p Max Video Bitrate: 100Mbps Color Mode: D-Cinelike Supported File System : FAT32 (≤ 32 GB), exFAT (> 32 GB) Photo Format : JPEG / DNG (RAW) Video Format: MP4 / MOV (MPEG-4 AVC/H.264, HEVC/H.265) GIMBAL Mechanical Range: Tilt: -135–45° Pan: -100–100° Controllable Range :Tilt: -90–30° Pan: -75–75° Stabilization: 3-axis (tilt, roll, pan) Max Control Speed (tilt): 120° /s Angular Vibration Range: ±0.01° REMOTE CONTROLLER Operating Frequency: 2.400 - 2.483 GHz; 5.725 - 5.850 GHz Max Transmission Distance (unobstructed, free of interference): 2.400 - 2.483 GHz; 5.725 - 5.850 GHz, FCC: 8000 m, CE: 5000 m, SRRC: 5000 m, MIC: 5000 m Transmission Power (EIRP) : 2.400 - 2.483 GHz, FCC: ≤26 dBm, CE: ≤20 dBm, SRRC: ≤20 dBm, IC: ≤20 dBm, 5.725-5.850 GHz, FCC: ≤26 dBm, CE: ≤14 dBm, SRRC: ≤26 dBm	
2. Advanced Drone -2 compatible Tablet device	Max takeoff weight: 900 gm Diagonal distance: min 350 mm Max Ascent Speed : 5 m/s (S-mode), 4 m/s (P-mode) Max Descent Speed : 3 m/s (S-mode), 3 m/s (P-mode) Max Speed (near sea level, no wind) : 72 kph (S-mode) Max Service Ceiling Above Sea Level : 6000 m Max Flight Time (no wind) : 31 minutes (at a consistent 25 kph) Max Hovering Time (no wind): 29 minutes Max Flight Distance (no wind): 18 km (at a consistent 50 kph) Max Wind Speed Resistance: 29–38 kph Max Tilt Angle: 35° (S-mode, with remote controller) 25° (P-mode) Max Angular Velocity: 200°/s Operating Temperature Range: -10°C to 40°C Operating Frequency: 2.400 - 2.483 GHz, .725 - 5.850 GHz Transmission Power (EIRP): 2.400 - 2.483 GHz, FCC：≤26 dBm, CE：≤20 dBm. SRRC：≤20 dBm, IC：≤20 dBm, 5.725-5.850 GHz, FCC：≤26 dBm, CE：≤14 dBm, SRRC：≤26 dBm GNSS: GPS+GLONASS Hovering Accuracy Range : Vertical:± 0.1 m (when vision positioning is active), ± 0.5 m (with GPS positioning) Horizontal:: ± 0.3 m (when vision positioning is active), ± 1.5 m (with GPS positioning) Internal Storage: :8 GB SENSING SYSTEM Sensing System :Omnidirectional Obstacle Sensing[1] Forward: Precision Measurement Range: 0.5 - 20 m, Detectable Range: 20 - 40 m, Effective Sensing Speed: ≤ 14m/s, FOV: Horizontal: 40°, Vertical: 70° Backward: Precision Measurement Range: 0.5 - 16 m, Detectable Range: 16 - 32 m, Effective Sensing Speed: ≤ 12m/s, FOV: Horizontal: 60°, Ve/rtical: 77° Upward: Precision Measurement Range: 0.1 - 8 m Downward: Precision Measurement Range: 0.5 - 11 m, Detectable Range: 11 - 22 m Sides: Precision Measurement Range: 0.5 - 10 m, Effective Sensing Speed: ≤ 8m/s, FOV: Horizontal: 80°, Vertical: 65° Operating Environment: orward, Backward and Sides:, Surface with clear pattern and adequate lighting (lux > 15) Upward:, Detects diffuse reflective surfaces (>20%) (walls, trees, people, etc.), Downward: Surface with clear pattern and adequate lighting (lux > 15), Detects diffuse reflective surfaces (>20%) (walls, trees, people, etc.) CAMERA Sensor:, 1” CMOS, Effective Pixels: 20 million Lens: FOV: about 77°, 35 mm Format Equivalent: 28 mm, Aperture:	1

	f/2.8–f/11, Shooting Range: 1 m to ∞ ISO Range: Video:100-6400, Photo:: 100-3200 (auto), 100-12800 (manual) Shutter Speed: Electronic Shutter: 8–1/8000s Still Image Size: 5472×3648 Still Photography Modes: Single shot: Burst shooting: 3/5 frames, Auto Exposure Bracketing (AEB): 3/5 bracketed frames at 0.7 EV Bias, Interval (JPEG: 2/3/5/7/10/15/20/30/60s RAW:5/7/10/15/20/30/60s) Video Resolution : 4K: 3840×2160 24/25/30p, 2.7K: 2688x1512 24/25/30/48/50/60p, FHD: 1920×1080 24/25/30/48/50/60/120p Max Video Bitrate: 100Mbps Color Mode: Dlog-M (10bit), support HDR video (HLG 10bit) Supported File System: FAT32 (≤ 32 GB),exFAT (> 32 GB) Photo Format: JPEG / DNG (RAW) Video Format: MP4 / MOV (MPEG-4 AVC/H.264, HEVC/H.265) GIMBAL Mechanical Range: Tilt: -135–45° Pan: -100–100° Controllable Range :Tilt: -90–30° Pan: -75–75° Stabilization: 3-axis (tilt, roll, pan) Max Control Speed (tilt): 120° /s Angular Vibration Range: ±0.01° REMOTE CONTROLLER Operating Frequency: 2.400 - 2.483 GHz; 5.725 - 5.850 GHz Max Transmission Distance (unobstructed, free of interference): 2.400 - 2.483 GHz; 5.725 - 5.850 GHz, FCC: 8000 m, CE: 5000 m, SRRC: 5000 m, MIC: 5000 m Transmission Power (EIRP) : 2.400 - 2.483 GHz, FCC: ≤26 dBm, CE: ≤20 dBm, SRRC: ≤20 dBm, IC: ≤20 dBm, 5.725-5.850 GHz, FCC: ≤26 dBm, CE: ≤14 dBm, SRRC: ≤26 dBm	
3. Basic Drone with compatible Mobile device	Takeoff Weight : 300 g Diagonal Distance (propellers excluded) : 170 mm Max Ascent Speed: 9.8 ft/s Max Descent Speed: 9.8 ft/s Max Speed: 31 mph Max Service Ceiling Above Sea Level : 13,123 feet (4,000 m) Max Flight Time : 15 minutes Max Hovering Time : 15 minutes Satellite Positioning Systems: GPS/GLONASS Hover Accuracy Range : Vertical:+/- 0.1 m (when Vision Positioning is active) or +/-0.5 m Horizontal: +/- 0.3 m (when Vision Positioning is active) or +/-1.5 m Transmitter Power (EIRP): 2.4 GHz FCC: 25 dBm; CE: 18 dBm; SRRC: 18 dBm; MIC:18 dBm 5.8 GHz FCC: 27 dBm; CE: 14 dBm; SRRC: 27 dBm; MIC: - Operating Frequency : 2.400 - 2.483 GHz; 5.725 - 5.825 GHz 3D SENSING SYSTEM Obstacle Sensing Range : 1-16 ft (0.2 - 5 m) Operating Environment : Detects diffuse reflective surfaces (>20%) larger than 20x20 cm (walls, trees, people, etc.) CAMERA Sensor: 1/2.3" CMOS Effective pixels: 12 MP Lens: FOV 81.9° 25 mm (35 mm format equivalent) f/2.6 (shooting range: 2 m to ∞) ISO Range: Video: 100-3200 Photo: 100-1600 Electronic Shutter Speed : 2-1/8000 s Image Size: 3968×2976 Still Photography Modes:Single Shot Burst Shooting: 3 frames Video Resolution : FHD: 1920×1080 30p Max Video Bitrate: 24 Mbps Supported File Systems: FAT32 Photo Format: JPEG Video Format: MP4 (MPEG-4 AVC/H.264) REMOTE CONTROLLER	1

	Operating Frequency: 2.412-2.462 GHz; 5.745-5.825 GHz Battery: 2970 mAh FLIGHT BATTERY : Capacity : 1480 mAh Battery Type : LiPo 3S Energy: 16 Wh	
4. Photogrammetry Software	Aerial —nadir & oblique— and terrestrial imagery Video (mp4 or avi format) Any camera (compact, DSLR, thermal, multispectral, fisheye, 360°, large-frame,etc.) images in .jpg or .tiff Multi-camera support in the same project RTK/PPK + IMU data support Camera rig support Ground control point edit and import Known or custom reference coordinate system support in imperial or metric units Camera exterior orientation support External point cloud import **PROCESSING** Processing templates Rapid Check with Quality Report Camera self-calibration Rolling shutter effect correction Automatic Aerial Triangulation (AAT) and Bundle Block Adjustment (BBA) Automatic point cloud densification Automatic point cloud filtering & smoothing Machine-learning point cloud classification Automatic DTM/DEM extraction Automatic brightness and color correction Quality Report Project merging and splitting Project area definition Custom number of key points Multiprocessor CPU + GPU support Radiometric processing and calibration **RAYCLOUD EDITOR** Project visualization Navigation modes Scale Constraint Orientation Constraint Ground control point (GCP) / Manual tie point (MTP) editing Ellipsoid error visualization Project reoptimization Image masking Point cloud editing Orthoplane creation Polyline and surface object creation 3D mesh and DSM editing Visual outlier detection Fly-through animation **VOLUME MANAGER** Volume object creation Volume object management Base adjustment **MOSAIC EDITOR** Region editing Local blending Planar or ortho projection selection **INDEX CALCULATOR** Radiometric adjustment interface Reflectance map Multiple region management NDVI map	perpetual license

	Index formula editing Class management Prescription annotation Prescription map export **OUTPUT RESULTS** 2D output results Nadir orthomosaics in Geo TIFF output format Orthomosaics from user-defined orthoplane in Geo TIFF output format Google tiles export in .kml and .html output formats Index maps (Thermal, DVI, NDVI, SAVI, etc.) in Geo TIFF and Geo JPG format Prescription maps in .shp format **2.5D output results:** • Nadir DSMs and DTMs in Geo TIFF format • DSMs from user-defined orthoplane in Geo TIFF output format **3D output results:** • 3D PDF for easy sharing of 3D mesh • Full 3D textured mesh in .obj, .ply, .dxf, and .fbx format • Tiled Level-of-detail (LoD) mesh in osgb and slpk (Esri) format • Point cloud in .las, .laz, .xyz and .ply output format• Contour lines in .shp, .dxf, .pdf format • Classified point cloud in .las and .csv format • Contour lines in .shp, .dxf, .pdf format • User-defined vector objects in .dxf, .shp, .dgn, and kml format" • Full 3D textured mesh in .obj and .fbx format • Point cloud in .las output format • Georeferenced annotations in .csv, GEOjson, and .shp format" **Fly-through animation and flight paths:** Export the animation in .mp4 and. avi formats and the fly-through waypoints and path in .csv format Optimized camera position, external orientation and internal parameters,: Export Aerial Triangulation results into third-party software (e.g. INPHO, Leica LPS, DAT/EM Summit Evolution) Undistorted images:: If the original images were acquired using a perspective lens an undistorted copy of the calibrated images should be generated **COLLABORATION :** Web share, inspection and visualization Visualize 2D maps and 3D models using any web browser -mesh & point cloud visualization options- Measurement of distances, surfaces, and elevation profiles Inspect and annotate using both original images and 3D information at the same time Share Projects with annotations via a simple link Embed project output in a webpage Real-time shading for digital surface model (DSM) visualization	

FORMAT FOR QUOTATION SUBMISSION
(In letterhead of the supplier with seal)

Date: _____

To:_____
_____

Sl. No.	Description of goods \ (with full Specifications)	Qty.	Unit	Quoted Unit rate in Rs. (Including Ex-Factory price, excise duty, packing and forwarding, transportation, insurance, other local costs incidental to delivery and warranty/ guaranty commitments)	Total Price (A)	Sales tax and other taxes payable	
						In %	In figures (B)
Total Cost							

Gross Total Cost (A+B): Rs. _____

We agree to supply the above goods in accordance with the technical specifications for a total contract price of Rs. ———————— (Amount in figures) (Rupees ————————amount in words) within the period specified in the Invitation for Quotations.
We confirm that the normal commercial warranty/ guarantee of ———————— months shall apply to the offered items and we also confirm to agree with terms and conditions as mentioned in the Invitation Letter.
We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

Signature of Supplier
Name:_____
Address:_____
Contact No. _____
Seal of the Company/Firm