



**SURVEY OF PAKISTAN  
RAWALPINDI  
INVITATION TO BID  
PROCUREMENT OF UAVS AND SOFTWARE**

Survey of Pakistan, a National Surveying & Mapping Agency invites sealed bids under” under Single Stage-Two Envelop procedure (PPRA Rule 36 (b) from the Original manufacturers / authorized distributors / suppliers/ service providers etc., registered with Income Tax & Sales Tax Departments for supply of following items/services under PSDP Project

Sr. #	Equipment/ services	Qty	Remarks	Closing Date
1.	UAV system including flying Management System associated hardware/ accessories	12	Pre-bid meeting to assess requirement and other technical detail will be held on 11-09-2023 in the office of Project Director.	25-09-2023
2	Software for data development using data of Aerial Photography using above UAV system	12		

- 1) Bidders can submit bid as composite package for both components or for any single component. However, it will be bidder (s) responsibility to ensure compatibility of the two components that is key to the success of project.
- 2) Bidding documents, containing detailed terms and conditions, technical specifications, method of procurement, procedure for submission of bids, bid security, bid validity, opening of bid, evaluation criteria, clarification/rejection of bids, performance guarantee etc., are available for the interested bidders at website of Public Procurement Regulatory Authority and Survey of Pakistan website [www.sop.gov.pk](http://www.sop.gov.pk) which can be downloaded
- 3) The bids, prepared in accordance with the instructions in the bidding documents, must reach to **Chairman Purchase Committee (CPC)** duly on or before **25-09-2023 at 10:30 hrs.** Bids will be opened on the same day at **11:00 hrs.**

-sd-  
(Nadeem Ahmad Ch)  
Deputy Surveyor General  
Chairman Purchase Committee  
051-9290202

## TERMS & CONDITIONS

1. Applications on prescribed form (attached) along with bidding document & Technical specifications (compliance sheet) and draft contract, can be downloaded from the website of PPRA, and also from survey of Pakistan ([www.sop.gov.pk](http://www.sop.gov.pk)).
2. The bids duly completed in all respect should reach at Directorate of Photogrammetry and Remote Sensing Survey of Pakistan Faizabad Rawalpindi duly addressed to the Project Director on or before 25-09-2023 at 10:30 hrs. Bids will be opened on the same day at 11:00 hrs. There will be **No time relaxation for postage/delivery of bid.** These bids will be opened at 11:00 hours on the same day in the presence of bidders or their authorized representatives.
3. The manufacturing/ assembling/ import (either in full or partly) of above equipment/ software shall not be of country that is banned/ declared illegible for any trade by the Government of Pakistan.
4. The method of procurement is **single stage – two envelopes** as per PPRA's Rule-36(b) as explained below.
  - a) The Bidders will send their Proposals in two sealed envelopes, marked as "FINANCIAL PROPOSAL" & "TECHNICAL PROPOSAL" in bold and legible letters to avoid confusion.
  - b) Initially, only envelopes marked as **Technical Proposal** shall be opened and envelopes marked as Financial Proposal shall be retained in the custody of Chairman Purchase Committee.
  - c) After the **evaluation & recommendations by the concerned Technical Evaluation Committee**, Financial Proposals of only technically qualified bids will be opened.
  - d) The Financial Proposals of bids found technically non-responsive shall be returned un-opened to the respective bidders.
5. The earnest money (4% of cost) in shape of pay order/bank draft in the name of to the Project Director, Directorate of Photogrammetry & Remote Sensing, Survey of Pakistan Faizabad, Rawalpindi should be enclosed in the envelope containing Financial Bid. However, the certificate for attachment be indicated in technical bid, otherwise, the same will be rejected at the opening stage of technical bids.
6. Bidder will provide compliance sheet of each item of the equipment against specifications. Bidder response should be explicit for each component.
7. Any ambiguous and implicit words in quotations (such as yes, ok, offered, available, provided, etc.) will be treated as 'non-responsive' and bid will be rejected at initial stage.
8. Bid will be rejected if bidder fails to submit any document after due date except in response to any clarification sought by Project Director in accordance with PPRA Rule-31.
9. The firm/supplier/ service provider interested in more than one item may furnish separate tender for each item.
10. Procuring agency may reject any or all bids subject observing the relevant provisions of PPRA Rules-33

11. Quantity of items can be increased or decreased in accordance to relevant PPRA Rules/ guidelines prevailing at closing date of the bid.
12. Only eligible/ registered suppliers who are on Active Tax Payers List (ATL) of FBR are eligible to supply goods/ items. The supplier should attach a proof that he is on ATL of FBR Data Base.
13. In Financial Proposal, the prices should be in Pak Rupees inclusive of all leviable taxes. The bidders should also provide the detail price analysis of the items/accessories in their Financial Proposal along with net quoted unit rate with GST and without GST showing complete pen picture of their quoted prices. Prices should be mentioned both in words & figures. In case of difference the amount given in words will be accepted.
14. Bids will be valid for 180 days from the date of opening of bid.
15. Display of the items/equipment & Software must be in English Version.
16. The bidders have to give demo (s) of their offered model during Technical Evaluation. The demo procedures/duration shall be determined by the Evaluation Committee. The bidder declared qualified after demo shall be considered technically qualified. The decision of Technical Committee will be final.
17. Successful bidder(s) will be required to execute agreement governing the terms & conditions of the contract.
18. The successful bidder shall be liable to give at least one month training of their approved equipment.
19. **Liquidation Damages:** The firm has to pay liquidation damages for the period of delays in supply of deliverables items up to rate of 2% of the contract price per month or part of a month exceeding the original delivery period subject to the provision that total liquidation damages thus levied will not exceed 10% of the total contract price.
20. **Performance Guarantee:** The bidder shall provide to Survey of Pakistan (SoP), a Performance Guarantee issued by A-Plus Pakistani Scheduled Bank, having a value of 5% of the contract price and which is valid minimum for 24 months or beyond the expected date of delivery of the items/equipment.
  - a. Bank Guarantee furnished against this contract is un-conditional. Firm will undertake not to hinder/restrain its encashment through court, extra judicial or any other way (including administrative process)
  - b. SoP shall confirm the authenticity / genuine of the Bank Guarantee from the concerned Bank.
  - c. Performance Guarantee shall be submitted just after successful submission of deliverable items and after obtaining
  - d. After issuance of LOI from SoP. 5% performance guarantee will remain held with SoP and be released on expiry of Support/ warranty Period duly certified by concerned TEC.
  - e. If the firm fails to produce the Bank Guarantee within 07 days, SoP reserves the right of cancelling the contract at the risk and expense of the firm. In the event of un-satisfactory performance or of any breach of terms of the contract, the bank guarantee shall be forfeited to the govt at the discretion of the firm.

21. **Confidentiality:** During the process of execution or after expiration of this contract, the firm shall not disclose any proprietary or data without the prior written consent of SoP.
22. The bidder shall be responsible for provision of all accessories of original brand to make the items operational.
23. Every page of the original proposal documents should be signed and stamped by the bidder and proposal to be submitted in binded form otherwise bid will not be accepted.
24. Bidder(s) shall provide soft copy of compliance sheet and major supported documents to be used
25. For purpose of evaluation, any firm, furnishes wrong information or proven wrong at any stage will be liable for legal proceedings. Any contract awarded in such case when find out, will be cancelled.
26. The bidder/lead should not be blacklisted by any of its clients. An affidavit to this affect must be submitted by the bidder.
27. **Litigation:** In case any dispute, the matter will be referred to Grievance Redressal Committee of the department constituted in accordance to PPRA Rules. The party aggrieved of the decision the committee can refer case to only court of law with jurisdiction at Rawalpindi/Islamabad to decide the matter.
28. For more information, please contact Mr. Muhammad Arshad Iqbal, Project Director at telephone/ Fax No. 051-9290212.

## **EVALUATION CRITERIA**

### **1. Technical Evaluation:**

- a. Technical Evaluation Reports of the Technical Proposals will be made as per tender specifications without the reference to the price as per PPRA Rule 36 (b)(v). The Technical proposal evaluation committee will evaluate the technical proposals and qualifications based on defined criteria (Annex A1, A2 & B).
- b. The bidder obtaining 80% or more marks will be technically qualified.

### **2. Evaluation of Financial Proposals / Bids**

- a. Only the Financial Proposals of those bidders will be opened publically who's Technical Proposals and qualifications have been recommended by the Technical Evaluation Committee of the department as per PPRA Rule. For financial evaluation, the total cost including all items & taxes indicated in the Financial Proposal will be considered.
- b. The Purchase Committee will determine whether the Financial Proposals are complete. The cost indicated in the Financial Proposal shall be deemed as final and reflecting the total cost of the equipment. Omissions, if any, in costing any item shall not entitle the firm to be compensated and the liability to fulfill its obligations within the total quoted price shall be that of the Vendor. The lowest Financial Proposal will be considered as the most advantageous bid.

## **RESPONSIBILITY AGAINST DAMAGES/OWNERSHIP OF EQUIPMENT**

The bidder shall be responsible for whole/any damage caused to the item(s)/equipment by accident / improper handling / loading, un-loading, before handed over to / taking charge by SoP. The bidder shall replace the same.

### **PAYMENT:**

- i. Payment shall be made in accordance to the schedule agreed upon within the contract.
- ii. The bidder shall provide necessary and supporting documents along with invoice.
- iii. The bidder shall submit an application for payment to the Project Director, Directorate of Photogrammetry & Remote Sensing, Survey of Pakistan Rawalpindi. The application shall be accompanied by such invoices, receipt or other documentary evidences as require, state the amount claimed and particulars of items supplied/equipment up to the date of application for payment.
- iv. SoP shall get verified the details of items delivered. Payment shall be made in accordance to the payment schedule agreed upon in the contract document and on delivery of items/services after issuance of satisfactory certificate by concerned technical committee/Project Director. Technical Inspection of items will be made in the presence of bidder or his authorized representative.
- v. SoP shall make payment for items supplied/services provided to the bidder as per Govt. policy in Pak Rupees through crossed Cheque after deduction of all levied taxes by the government at the time of payment.
- vi. All payment shall be subject to any and all taxes, duties and levies applicable under the laws of Pakistan for the whole period starting from issuance of Supply Order till release of the payment.

### **SUPPLY PERIOD:**

- i. The firm will provide items within a period as mentioned in the contract
- ii. The most advantageous bidding firm/vendor shall be responsible to deliver goods/services within due time as given in Supply Order/Tender document.

### **AGREEMENT DEED**

After receiving work order/supply order the firm has to sign a formal agreement deed on a stamp paper of appropriate value as per attached sample.



**CONTRACT CONDITIONS/CLAUSES:**

Sr. #	Equipment/ services	Quantity
1.	Name of Consignee	Project Director, Directorate of Photogrammetry & Remote Sensing, Survey of Pakistan. Rawalpindi
2.	Cost debatable to head	
3.	Supplier's Name and address	
4.	Supplier NTN. No.	
5	Supplier Sales Tax Reg. No.	
6	Date of delivery	
7	Makers Name & Brand	
8	Dispatch instruction	The stores will be dispatched to the consignee under firm's own arrangements. No part supply will be allowed in any case.
9	Packing & Marking Instructions	Each item will be packed/marked as per relevant paper's particulars governing the supply of store/standard/trade marking worthy of transportation by Rail/Road/Air within Pakistan so as to ensure their safe arrival at ultimate destination without any loss or damages
10	Inspection	a). <b>Inspection Authority:</b> Technical Evaluation Committees (TECs) b). <b>Inspection Officer:</b> Chairman Technical Evaluation Committees c). <b>Place of Inspection:</b> Consignee's Premises d). The Inspecting Officer will be informed 02 working days in advance about the time for inspection
11)	<b>Checking of Stores at Consignee's End:</b>	All stores will be checked at consignee's premises in the presence of supplier's representatives. If, for the reasons of economy or other the supplier decides not to nominate his representative for such checking, then advance written notice to this effect will be given by the supplier to the <b>Project Director, Directorate of Photogrammetry &amp; Remote Sensing Survey of Pakistan Rawalpindi</b> under intimation to <b>CPC</b> prior to or immediately on delivering stores. In such an event, the supplier will clearly under take the decision of consignee with regard

to quantities and description of a consignment, which will be taken as final and if any discrepancy found will according be made up by the supplier.

12). **Terms of Payment:**

- a) Payment (as per contract document) of value of the stores supplied will be paid to M/s. -----, through Cheque by submission of bills duly supported by the **NOC** from concerned **TEC**
- b) Bill will be furnished to the Project Director, SoP, Rawalpindi, which will subsequently be submitted to AGPR, Islamabad by the consignee.

13). **Taxes & Duties:**

- a) **Duties & Taxes Applicable:** The prices quoted are inclusive of all kinds of duties and taxes. The purchaser shall not be liable for reimbursement of duties and taxes on the contracted goods other than those given in the quoted rates. The payment of element of taxes and duties, which are included in quoted rates, will be made to the supplier only after production of duly authenticated documentary proof of its payment to the respective department. In case fresh taxes and duties are levied by the government after opening of the tender will signing of the contract and during the currency of the contract (i.e. within the original delivery period) or if the existing rates of taxes are increased after opening of the tender and during the currency of the contract, liability shall be of the purchaser and the same shall be reimbursed by the AGPR, Islamabad to the supplier at actual, on production of documentary proof of his payment duly authenticated. In case of any subsequent decrease in existing or future duty or taxes by the Govt. after opening of tender and during the currency of the contract the liability shall be of the supplier and the supplier shall reimburse the same to AGPR, Islamabad under intimation to purchaser.
- b) For release of payment, the supplier would be required to furnish the following documents to **Project Director, Directorate of Photogrammetry & Remote Sensing.**
  - i. Proof of registration with Sales Tax Department (Copy of registration certificate)
  - ii. Sales Tax Invoice in original showing description/quantity/value of goods and current amount of Sales Tax levy able thereon.

14). **Bank Guarantee Clause:**

- a). To ensure timely and correct supply of stores and smooth execution of warrantee conditions the firm will furnish a bank guarantee/draft from a schedule bank for an amount of 5% of the total value of the contracted stores amounting to **Rs. -----** to **CPC**. After completion of warrantee period i.e. 01 years from the date of signing of NOC by **PC** the supplier will request the **CPC** through **Project Director**, for the withdrawal of bank guarantee/draft. The bank draft will be encased/deposited in SoP's bank account. The bank draft shall be produced by the supplier within 07 days from the date of issue of letter of intent/signing of contract deed and shall remain in force till completion of the warrantee period beyond the date of inspection



- b) If the supplier fails to produce the bank guarantee/draft within the specified period, the Project Director reserves the right of canceling the contract at the risk and expense of the supplier. In the event of un-satisfactory performance or of any breach of terms of the contract, the bank guarantee/draft shall be forfeited to the government at the discretion of the purchaser. On satisfactory performance of the contract the bank guarantee/draft will be returned to the supplier by CPC, on receipt of clearance from the Consignee.
- c) Bank guarantee/draft furnished against this contract is un-conditional and encashable at the will of purchaser. Supplier undertakes not to hinder/ restrain its encashment through court, extra judicial or any other way (including administrative process).

**15) Supplier Warranty/Guarantee:**

- a) The supplier shall furnish warranty for the stores under supply against defects in material workmanship, and satisfactory performance for one year free service and additional 02 year(s) with parts and one year free service. The stores will be of the high-test grade and consistent with general expectable standard for the stores of type ordered in full conformity with governing specifications and performance of stores with the liability of replacing defective/unacceptable part free of cost within **07 days** by the supplier on receiving the discrepancy report, failing which the purchaser shall have the right to purchase the stores (against the stores declared defective) at the suppliers risk and expense. The supplier also undertakes to make good the deficiency in supply, if any.
- b) Supplier's warranty shall be provided to the consignee along with the store.

**16) Inspection after Expiry of Delivery Period:** Unless informed and directed to the contrary during the currency of the contract, the Inspection Officer will continue the inspection of the stores at firm's risk even after expiry of delivery period. Such acceptance will not prejudice the purchaser's right to cancel the contract or to extend the delivery period with or without liquidated damages.

- 17) Failure and Termination:** Should the supplier fail to deliver the stores within stipulated period of supply, on the expiry; the purchaser shall be entitled at his option to take either of the following actions:
- a) To cancel the contract or purchase from elsewhere the stores not delivered, at risk and expense of the supplier and without notice to him. The supplier shall also be liable to any loss which purchaser sustains on this account but shall not be entitled to any gain of repurchase.
  - b) To make the supplier pay liquidation damages for the period of delays in supply up to the rate of 2% of the contract value un-supplied stores per month or part of a month for the period exceeding the original delivery period subject to the provision that total liquidation damages thus levied will not exceed **10%** of the total contract value.
  - c) If contract of the firm is cancelled at 'Risk and Expense' then the latest equivalent of their cancelled stores will be purchased at 'Risk and Expense' of the concerned firm if the cancelled type/category is not available in the market. Similarly an item of contract on FOR (indigenous) basis may be produced at risk

and expenses of the firm on FOR (Imported) basis and vice-versa in the interest of the state.

- 18). **Force Majeure:** Force Majeure shall mean any event, act or other circumstances, not being an event, act or circumstance, under the control of the purchaser or of the supplier. Non-availability of raw material from the manufacturer of stores, or of export permit for the export of the contracted stores from the country of its origin, shall not constitute Force Majeure.
- 19). **Special Instructions:**  
**Warranty/Guarantee:**
- a) The supplier has to provide warranty/guarantee of the stores supplied for a period of 01-year standard warrantee including repair, servicing and replacement of parts from the date of issuance of NOC by the **CPC** The supplier shall replace the defective stores free of cost. Warranty/Guarantee Certificate with regards to all items being supplied would be provided to the consignee along-with the stores.
  - b) Trade mark of all items should be quoted clearly. On receipt, if any stores are found to be otherwise it will be changed/ replaced free of cost.
  - c) The Supplier will be strictly bound to supply the contracted stores as per tendered specifications, and fulfill all responsibilities in this regard.
- 20). **Litigation:** In case of any dispute, only court of jurisdiction at Rawalpindi/ Islamabad shall have the jurisdiction to decide the matter.

### Signatures

<b>Purchaser</b>		<b>Suppliers</b>
Designation.	Chairman Purchase Committee	
Name		
Signature & Seal		
For and on behalf of the President of Islamic Republic of Pakistan.		

**PRESCRIBED APPLICATION FORM FOR TENDERING OF PROCUREMENT OF EQUIPMENT**

(To be printed on firm/supplier's letter head duly signed by the authorized representative)

The Chairman Purchase Committee,  
Survey of Pakistan  
Rawalpindi.

In response to press advertisement dated: - -2023 appeared in the daily ..... we M/s..... have downloaded Tender Documents consisting of Contract Proforma for Tendering under Purchase of stores including the detail and specifications from PPRA's website/ web site of Survey of Pakistan.

We have gone through all the terms and conditions contained in above mentioned documents and those, which are the part of tender.

We fully agree to abide by the terms and conditions contained in the said documents and therefore hereby submit Technical as well as Financial Proposals for the following:


**AUTHORISED SIGNATURE  
NAME & SEAL OF FIRM/SUPPLIER**

**Technical Specifications**

**for**

**Procurement of Modern UAVs for Aerial Photographic Survey**

**By**

**Survey of Pakistan**

**Directorate of Photogrammetry & Remote Sensing**

----- September, 2023

## Purpose and Scope of the Document

This document is part of the Tender document for **Procurement of Modern UAVs for Aerial Photographic Survey** through competitive bidding procedure. The purpose of this document is to provide bidders with detailed information on technical requirements and specifications for the equipment and Software.

## Bidders response to requirements

The document enlists all requirements in left columns. The bidder shall provide his consent in the rightmost column. The response should be explicit in well-defined specification offered for the components against each row.

**Any ambiguous and implicit words or quotations (such as yes, ok, offered, available and provided etc) shall be treated as “non-responsive”.**

The minimum thresholds for key components are given below whereas rest of the components should follow compatibility requirement.

Bidder to submit proposals in both hard and soft format (for evaluation purpose).

## Component 1: UAV system including flying Management System - hardware/ accessories

Sl#	Component	Specification	Bidder Response
1.	Type of UAV	Fixed Wing (PPK enabled)	
2.	Material	Light weight material such as Fiber, glass, carbon, EPP foam or plywood	
3.	Take off/ landing	(VTOL) Vertical Take-Off & Landing	
4.	Launch and Landed method	Preferably VTOL due to space limitation in Urban Areas	
5.	Cruise speed	50 - 60 Km/hour	
6.	Overlap	Minimum 60 % Side overlap & 80 % Forward overlap	
7.	Productivity: Max area coverage	2 Km <sup>2</sup> at Altitude of < 250 meters in single flight <b>with 3-5 cm GSD</b>	
8.	On Board GNSS for PPK	Multi Constellation	
9.	Deployment time	5 – 8 minutes	
10	Endurance	Flight time 1 hour +	
11.	GNSS for GCP's and PPK	1 X Base, 1 X Rover with Tablet for Field GCP and PPK having RTK range of 10 Km with Internal Radio	
12	Performance Characteristics	Telemetry range > 3 km Horizontal Absolute Accuracy < 2cm when using PPK Fully autonomous Flight Enhanced compatibility with Industry Standard software (camera parameters already automatically recognized)	
13	Temperature Resistance	-20° C to 45° C	

14	Weather resistance	Wind speed Up to 10 m/s , can fly cross the wind and during moderate rain	
15	Storage	Solid state drive (SSD) built into aircraft electronics board for photo and data storage enabling 6 hours of data to be collected	
16	Flight Planning Software	Windows/Android-based flight planning software on portable rugged tablet Flight planning software capable of a. planning multiple separate surveying areas at once b. importing .kml files importing custom Digital Terrain Models (DTM) for up to date terrain	
17	Batteries	8 batteries per UAS to have 4 mission minimum in 1 Day	
18	UAV Hardware (accessories)	<ul style="list-style-type: none"> <li>• Wingspan&lt;1.3 to 1.7m for easy portability</li> <li>• Glass fiber/ Composite</li> <li>• Carbon body for superior aerodynamics and more stable flight</li> <li>• Exchangeable cameras between RGB and</li> <li>• Multispectral (OPTI)</li> <li>• Extension cable for in field charging available</li> <li>• Capability to charge battery 'in the field' using a car battery</li> <li>• Built in safety lights</li> <li>• 2 Navigation lights,</li> <li>• 2 Anti-collision lights — 1km [0.6 miles] of visibility</li> </ul>	
19	Camera	<ul style="list-style-type: none"> <li>• 42 MP mapping or better / Lidar Camera (quote separate cost for both cameras)</li> <li>• Latest technology</li> <li>• Distortion free</li> <li>• Ability to make in-flight adjustments to camera exposure settings</li> <li>• and GPS integrated</li> </ul>	

**Component 2: Software for data development using Aerial Photography using above UAV system including workstation**

20	Photogrammetric Triangulation	<ul style="list-style-type: none"> <li>• Processing of various types of imagery: aerial (nadir, oblique) &amp; close-range, Multispectral Imagery</li> <li>• Auto calibration:</li> <li>• frame (incl. fisheye, spherical &amp; cylindrical cameras)</li> <li>• Multi camera projects support</li> </ul>	
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21	Ground Control Points: High Accuracy Surveying	<ul style="list-style-type: none"> <li>• GCPs import to control accuracy of the results.</li> <li>• Ground Control Point Management: creating, importing and changing projections.</li> <li>• Can adjust the point cloud to a single or couple GCPs if no more are available.</li> <li>• Coded/non-coded targets auto detection for fast GCPs input.</li> <li>• Scale bar tool to set reference distance without implementation of positioning equipment.</li> </ul>	
22	Point Cloud Management. Editing and Classification	<ul style="list-style-type: none"> <li>• Elaborate model editing for accurate results.</li> <li>• Georeferences the point cloud to photo GPS data.</li> <li>• Point's classification to customize geometry reconstruction.</li> <li>• .LAS export to benefit from classical point data processing workflow</li> <li>• Project scaling for accurate scale representation.</li> </ul>	
23	Digital Terrain, Surface and Elevation Model: Extraction/ Export	<ul style="list-style-type: none"> <li>• Digital Surface and Terrain Model - depending on the project.</li> <li>• Covert models to contour lines to user defined interval</li> <li>• Supported for Georeferncing based on user friendly parameters</li> <li>• EXIF Meta data/flight log: GPS/GCPs data</li> <li>• 5x times Zoom in-out capacity for analysis</li> <li>• Can crop entire models to selection</li> <li>• Levels out the terrain by averaging height values of the selection points.</li> <li>• Levels out the terrain by the maximum selection point height.</li> </ul>	
24	3D Model Generation and Texturing	<ul style="list-style-type: none"> <li>• Various scenes: archaeological sites, artifacts, buildings, interiors, people, etc.</li> <li>• Direct upload Sketch fab resource and export to various popular formats.</li> <li>• Photorealistic textures: Realistic texture for 3D mesh.HDR and multi file support</li> </ul>	
25	Georeferenced Orthomosaic Export	<ul style="list-style-type: none"> <li>• Generating &amp; editing georeferenced orthomosaic GIS-compatible</li> </ul>	

		<ul style="list-style-type: none"> <li>• Support for various resampling algorithm, DEM from other source</li> <li>• Support user defined pixel size during rectification</li> <li>• Multichannel Ortho mosaic generation</li> <li>• GeoTIFF format; .KML file to be located on Google Earth.</li> <li>• Export in blocks for huge projects.</li> <li>• Color/geometric/dynamic correction for</li> <li>• homogeneous texture</li> </ul>	
26	Measurements: Distances, Areas, Volumes	<ul style="list-style-type: none"> <li>• Inbuilt tools to measure areas, lengths and volumes in both 2D and 3D.</li> <li>• To perform more sophisticated metric analysis</li> </ul>	
27	Export/Import	<ul style="list-style-type: none"> <li>• Export georeferenced point clouds in different format such as LAS, xyz, poly formats</li> <li>• Export 3D mesh with textures in .obj and .ply file formats.</li> <li>• Export DEM to .obj .tif and Orthophoto to .tif file formats.</li> </ul>	
28	Network Processing (Optional)	Distributed calculations over a computer network to use combined power of multiple nodes for huge data sets processing in one project.	
<b>Workstation</b>			
29	System	Branded	
30	Operating System	Window 10 (64 bit)- Latest or better	
31	Processor	2xintel@ Xeon@E5-2687W v3 (14C,3.1 GHz Turbo HT)	
32	RAM	> 32 GB 2133 MHz DDR 4	
33	Hard Drives	01 TB SAS (10 rpm)	
34	Graphic	Integrated graphic card > 4 GB chipset compatible (Latest Version) or equivalent	
35	LEDs	2 LED (one for stereo viewing)	
36	UPS	Min 3 KVA or equivalent, with dry batteries	
37	Accessories	<ul style="list-style-type: none"> <li>• Input output support compatible</li> <li>• Power supply and cables</li> <li>• Wireless Key Board, mouse</li> <li>• Manuals</li> <li>• 3D Vision glasses/ Support</li> </ul>	
<b>Other Mandatory Requirement</b>			
38	Training	One month (flight management, data processing development, trouble-shooting etc).	



39	Pilot Project	One pilot project	
40	Repairing & Maintenance support	<ul style="list-style-type: none"> <li>• One year free,</li> <li>• Service agreement for 2 years (extendable on performance)</li> </ul>	
41	Documentation	All manuals in English Languages (both in hard & Soft formats)	

Aftab Nazir Ahmad  
Deputy Director  
Member (TEC-)

Muhammad Amjad  
Deputy Director  
Member (TEC-)

Muhammad Arshad Iqbal  
Director (Ph & RS)  
Chairman (TEC-)

**Technical Evaluation Parameters –Marks/ Score Sheet**

Sr.#	Name of Firm	Assessment Parameters								Total
		50	10	5	5	10	10	5	5	
		Technical Compliance	Firm relevance Experience	OEM Certification	OEM Authorization from Principal	After sale Repairing & maintenance Support	Training Support	Financial Worth	Equipment brand	100
1										
2										
3										
4										

A Firm must secure 80% marks/score with at least 40% in Technical Compliance will qualify for the next process.

**Technical Evaluation Parameters –Marks/ Score Sheet**

Sr.#	Name of Firm	Assessment Parameters								Total
		50	10	5	5	10	10	5	5	
		Technical Compliance	Firm relevance Experience	OEM Certification	OEM Authorization from Principal	After sale Repairing & maintenance Support	Training Support	Financial Worth	Equipment brand	100
1										
2										
3										
4										

A Firm must secure 80% marks/score with at least 40% in Technical Compliance will qualify for the next process.

### Distribution of Scores Allocation

Sr.#	Assessment Parameters	Status	Score Award
1	Technical Compliance	More than 90%	50
		Between 80% - 90%	45
		Between 75 % to 80%	40
		Less than 75 %	Non compliance
2	Firm relevance Experience	More than 15 years	10
		Between 10-15 years	8
		Between 5-10 years	6
		upto 5 years	4
		Less than 5 years	2
3	O/M Certification	Gold	5
		Tier 1	4
		Silver	3
		Registration	2
		No registration	Non-Compliance
4	O.M Authorization	Sole in Pakistan	5
		Other	3
		None	Non-Compliance
5	After Sale Support (Repairing & Maintenance)	Very Good	10
		Good	07
		Satisfactory	05
		None	00
6	Training Support	Very Good	10
		Good	07
		Satisfactory	05
		None	00
7	Financial Worth	200 Million or more	5
		150 to 200 Million	3
		Less than 150 Million	1
8	Equipment Brand	Renowned Pakistani	5
		Renowned international	4
		Non-Renowned	2

