

REQUEST FOR PROPOSAL

SOLICITATION NUMBER: USDA-FS-4-09

AERIAL PHOTOGRAPHY SERVICES

For Kaibab National Forest, Arizona, and

Lincoln National Forest, New Mexico

Solicitation Issue Date: April 1, 2009

Proposal Due Date: May 1, 2009



U.S. DEPARTMENT OF AGRICULTURE
FARM SERVICE AGENCY
AERIAL PHOTOGRAPHY FIELD OFFICE

NOTICE TO OFFEROR

Any proposal submitted for this RFP must be identified with the following information labeled on the outside of the mailing package:

SOL.NO: USDA-FS-4-09

DUE DATE: 01-MAY-2009, 4:30 PM

RECEIVING OFFICE: CONTRACTING

Mail To: AERIAL PHOTOGRAPHY FIELD OFFICE
CONTRACTING OFFICER
2222 WEST 2300 SOUTH
SALT LAKE CITY UTAH 84119

NOTICE TO PROSPECTIVE OFFERORS :

OFFERORS ARE CAUTIONED TO NOTE THE FOLLOWING SPECIAL CONTRACT REQUIREMENTS:

Section L for proposal preparation instructions. Any proposal submitted in response to this solicitation must be presented in two parts, a pricing proposal and a technical proposal.

Section B, Paragraph 1.2(e) & 2.2(e), 6" Focal Length Aerial Mapping Camera required.

Section B, Paragraph 1.2(h) & 2.2(h), Full-size color contact inspection prints required.

Options include: (1) ABGPS & IMU, See Section B-3 and (2) scanning of aerial imagery, See Section B-4.

This RFP is subject to the Availability of Funds Clause (FAR 52.232-18). See Section B-5.2, Page 8.

This solicitation is totally set-aside for small business concerns. See FAR Clause 52.219-06, Notice of Total Small Business Set-Aside (July 1996).

The complete text of any or all clauses referenced herein may be obtained by submitting a request, identifying this solicitation number, to the Contracting Officer, USDA, FSA, Aerial Photography Field Office, 2222 West 2300 South, Salt Lake City, Utah 84119. Complete copies of the FAR in loose-leaf or CFR form may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington D.C. 20402.

| | | | | | | | | | |
|--------------------------------------|--|------------------------|--|--|---|----------------|------|--------------------------------|-------|
| SOLICITATION, OFFER AND AWARD | | | 1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700) | | ▶ | RATING | PAGE | OF | PAGES |
| 2. CONTRACT NUMBER | | 3. SOLICITATION NUMBER | | 4. TYPE OF SOLICITATION | | 5. DATE ISSUED | | 6. REQUISITION/PURCHASE NUMBER | |
| | | | | <input type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP) | | | | | |
| 7. ISSUED BY | | | CODE | 8. ADDRESS OFFER TO <i>(If other than Item 7)</i> | | | | | |
| | | | | | | | | | |

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and _____ copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in _____ until _____ local time _____
(Hour) *(Date)*

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

| | | | | |
|-----------------------------------|---------|--|--------|-------------------|
| 10. FOR INFORMATION CALL: ▶ | A. NAME | B. TELEPHONE <i>(NO COLLECT CALLS)</i> | | C. E-MAIL ADDRESS |
| | | AREA CODE | NUMBER | EXT. |

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| | B | SUPPLIES OR SERVICES AND PRICES/COSTS | | PART III - LIST OF DOCUMENTS, EXHIBITS AND OTHER ATTACH. | | | |
| | C | DESCRIPTION/SPECS./WORK STATEMENT | | | J | LIST OF ATTACHMENTS | |
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OFFER *(Must be fully completed by offeror)*

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days *(60 calendar days unless a different period is inserted by the offeror)* from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

| | | | | |
|--|----------------------|----------------------|----------------------|-------------------|
| 13. DISCOUNT FOR PROMPT PAYMENT <i>(See Section I, Clause No. 52.232-8)</i> | 10 CALENDAR DAYS (%) | 20 CALENDAR DAYS (%) | 30 CALENDAR DAYS (%) | CALENDAR DAYS (%) |
| | | | | |

| | | | | |
|--|---------------|------|---------------|------|
| 14. ACKNOWLEDGMENT OF AMENDMENTS <i>(The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):</i> | AMENDMENT NO. | DATE | AMENDMENT NO. | DATE |
| | | | | |
| | | | | |

| | | | | |
|----------------------------------|------|----------|---|--|
| 15A. NAME AND ADDRESS OF OFFEROR | CODE | FACILITY | 16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER <i>(Type or print)</i> | |
| | | | | |

| | | | |
|-----------------------|---|---------------|----------------|
| 15B. TELEPHONE NUMBER | <input type="checkbox"/> 15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE. | 17. SIGNATURE | 18. OFFER DATE |
| AREA CODE NUMBER EXT. | | | |

AWARD *(To be completed by Government)*

| | | | |
|-----------------------------------|------------|----------------------------------|--|
| 19. ACCEPTED AS TO ITEMS NUMBERED | 20. AMOUNT | 21. ACCOUNTING AND APPROPRIATION | |
| | | | |

| | |
|--|---|
| 22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)) <input type="checkbox"/> 41 U.S.C. 253(c) () | 23. SUBMIT INVOICES TO ADDRESS SHOWN IN <i>(4 copies unless otherwise specified)</i> ▶ ITEM |
| | |

| | |
|---|-----------------------------|
| 24. ADMINISTERED BY <i>(If other than Item 7)</i> | 25. PAYMENT WILL BE MADE BY |
| CODE | CODE |
| | |

| | | |
|--|---|----------------|
| 26. NAME OF CONTRACTING OFFICER <i>(Type or print)</i> | 27. UNITED STATES OF AMERICA <i>(Signature of Contracting Officer)</i> | 28. AWARD DATE |
| | | |

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

PART I – THE SCHEDULE

SECTION B – SUPPLIES OR SERVICES AND PRICES/COSTS

The Contractor is responsible for furnishing aerial photographic services and related supplies in accordance with the requirements, specifications, terms, conditions, clauses, and provisions specified herein.

| B-1 – PROJECT ITEM 1: Kaibab National Forest, Arizona | | | | |
|--|-------|--------------|------------|-------|
| PROJECT AREA | QTY. | UNIT | UNIT PRICE | TOTAL |
| a. Kaibab NF 1:24,000 | 1,121 | Linear Miles | \$ | \$ |
| b. Kaibab NF 1:12,000 | 598 | Linear Miles | \$ | \$ |
| Project Item 1 Total Amount: | 1,719 | Linear Miles | \$ | \$ |

1.1 Intended Use of Photography

Resource and multi-use management activities.

1.2 Project Requirements

(a) Nominal Photographic Scale:

- (1) 1:24,000 (Line Item a)
- (2) 1:12,000 (Line Item b)

(b) Project Code: 613070

(c) Approximate Photographic Period: June 1, 2009 through September 30, 2009.
See Section F-5, Performance of the Work.

(d) Minimum Sun Angle: 45 Degrees

(e) Aerial Camera: The Lens Focal Length is 6 inch (153 mm) with an Antivignetting Filter. See Section C-2, Equipment Requirements, and Section C-3, Precision Aerial Mapping Camera.

- (f) Aerial Film: Type: Color Negative Film. Kodak Aerocolor Negative Film 2444, Agfa Aviphot X100, or equal. See Section C-6, Aerial Film.
- (g) Film Titling: Every exposure shall be titled in accordance with the format and instructions specified herein. See Section C-7, Titling of Aerial Film, for instructions and titling format.
- (h) Photographic Prints: One (1) set of color balance samples and One (1) set of color inspection prints from the original aerial film is required. Inspection prints shall be full-size contact prints prepared according to instructions specified in Section C-8, Photographic Prints.
- (i) Photo-Center Data File & Metadata File: A Photo-Center Data File and Metadata File are required and shall be prepared by the Contractor in accordance with specifications herein. See Section C-11, Data Files, for description and instructions.
- (j) Official Flight Plan Data (Government Furnished Materials):
 - (1) Digital Raster Graphic (DRG): Base map for the project area.
 - (2) Flight Line Terminal Point Data (FLN): Latitude/Longitude coordinates in degrees, minutes, seconds, and decimal seconds.
 - (3) Flight Altitude Data (OPT): Flight segments with altitudes above sea level and flight line breaks in UTM NAD 83.
 - (4) Project Boundary File (BND): Digital project boundary lines. (See Section C-5.2, Flight Plan Data)
- (k) Project Map: See Section J, Exhibit 1, Figure 1.

1.3 Photographic Operations

- (a) Air Space Clearance: This Project Item may contain areas of controlled or restricted airspace. It is the responsibility of the Contractor to obtain all approvals necessary to assure that specified altitudes are achieved. See Section H-1, Permits & Clearances, for instructions.
- (b) Terrain Conditions: Type of ground cover for this project is: Forest. Photography must be secured when neither snow nor flooding obscures the ground. See Section C-4, Photographic Conditions.
- (c) Progress Reports: A Progress Report is required for each day progress is made in acquiring project photography and shall be transmitted by e-mail following each day of progress. An e-mail address will be provided to the contractor at contract award. See Sections F-5.2, Progress Reports, and G-4, Progress Reports, for instructions and Section J, Exhibit 3, Progress Reports, for data syntax and format.

| B-2 – PROJECT ITEM 2: Lincoln National Forest, New Mexico | | | | |
|--|-------|--------------|------------|-------|
| PROJECT AREA | QTY. | UNIT | UNIT PRICE | TOTAL |
| Lincoln NF | 1,223 | Linear Miles | \$ | \$ |

2.1 Intended Use of Photography

Resource and multi-use management activities.

2.2 Project Requirements

- (a) Nominal Photographic Scale: 1:24,000
- (b) Project Code: 613080
- (c) Approximate Photographic Period: June 1, 2009 through September 30, 2009.
See Section F-5, Performance of the Work.
- (d) Minimum Sun Angle: 45 Degrees
- (e) Aerial Camera: The Lens Focal Length is 6 inch (153mm) with an Antivignetting Filter. See Section C-2, Equipment Requirements, and Section C-3, Precision Aerial Mapping Camera.
- (f) Aerial Film: Type: Color Negative Film. Kodak Aerocolor Negative Film 2444, Agfa Aviphot X100, or equal. See Section C-6, Aerial Film.
- (g) Film Titling: Every exposure shall be titled in accordance with the format and instructions specified herein. See Section C-7, Titling of Aerial Film, for instructions and titling format.
- (h) Photographic Prints: One (1) set of color balance samples and One (1) set of color inspection prints from the original aerial film is required. Inspection prints shall be full-size contact prints prepared according to instructions specified in Section C-8, Photographic Prints.
- (i) Photo-Center Data File & Metadata File: A Photo-Center Data File and Metadata File are required and shall be prepared by the Contractor in accordance with specifications herein. See Section C-11, Data Files, for description and instructions.

- (j) Official Flight Plan Data (Government Furnished Materials):
 - (1) Digital Raster Graphic (DRG): Base map for the project area.
 - (2) Flight Line Terminal Point Data (FLN): Latitude/Longitude coordinates in degrees, minutes, seconds, and decimal seconds.
 - (3) Flight Altitude Data (OPT): Flight segments with altitudes above sea level and flight line breaks in UTM NAD 83.
 - (4) Project Boundary File (BND): Digital project boundary lines. See Section C-5.2, Flight Plan Data
- (k) Project Map: See Section J, Exhibit 1, Figure 2.

2.3 Photographic Operations

- (a) Air Space Clearance: This Project Item may contain areas of controlled or restricted airspace. It is the responsibility of the Contractor to obtain all approvals necessary to assure that specified altitudes are achieved. See Section H-1, Permits & Clearances, for instructions.
- (b) Terrain Conditions: Type of ground cover for this project is: Forest. Photography must be secured when neither snow nor flooding obscures the ground. See Section C-4, Photographic Conditions.
- (c) Progress Reports: A Progress Report is required for each day progress is made in acquiring project photography and shall be transmitted by e-mail following each day of progress. An e-mail address will be provided to the contractor at contract award. See Sections F-5.2, Progress Reports, and G-4, Progress Reports, for instructions and Section J, Exhibit 3, Progress Reports, for data syntax and format.

B-3 OPTION 1 FOR AGPS AND IMU DATA

The Government will accept price proposals on an optional award to include the deliverable of Airborne Global Positioning System (ABGPS) and/or Inertial Measurement Unit (IMU) data. The Contracting Officer may exercise this option by notice to the Contractor upon award. If this option is exercised this requirement will be incorporated into and become part of Project Item 1 and Project Item 2. The Contracting Officer may or may not exercise this option.

3.1 Option 1a for ABGPS Data

| OPTION ITEM 1a: ABGPS DATA for Kaibab NF, AZ and Lincoln NF, NM | |
|--|-------|
| PROJECT AREA | TOTAL |
| Kaibab NF, AZ | \$ |
| Lincoln NF, NM | \$ |
| Total | \$ |

- (a) Project Requirements: Contractor shall collect ABGPS data for each exposure acquired.
- (b) Contract Deliverables: The ABGPS data is to be delivered in ASCII file. Refer to Section C-10, ABGPS/IMU Data Files. The Contractor shall submit ABGPS data in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

3.2 Option 1b for IMU Data Points

This option will only be exercised if Option 1a for ABGPS Data is exercised. (*Please price separately*)

| OPTION ITEM 1b: IMU DATA for Kaibab NF, AZ and Lincoln NF, NM | |
|--|-------|
| PROJECT AREA | TOTAL |
| Kaibab NF, AZ | \$ |
| Lincoln NF, NM | \$ |
| Total | \$ |

- (a) Project Requirements: Contractor shall collect IMU data for each exposure that is acquired.
- (b) Contract Deliverables: The IMU data is to be delivered in ASCII file. Refer to Section C-10, ABGPS/IMU Data Files. The Contractor shall submit ABGPS/IMU Data in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F).

B-4 OPTION 2 FOR SCANNING OF FILM EXPOSURES

The Government will accept price proposals on an optional award to include the requirement for scanning services. The Contracting Officer may exercise this option by notice to the Contractor by August 30, 2009. If this option is exercised this requirement will be incorporated into and become part of Project Item 1 and Project Item 2. The Contracting Officer may or may not exercise this option.

| OPTION ITEM 2: Scanning of Film Exposures | | | | |
|--|------|-----------|------------|-------|
| PROJECT AREA | QTY. | UNIT | UNIT PRICE | TOTAL |
| Kaibab NF, AZ | | Exposures | \$ | \$ |
| Lincoln NF, NM | | Exposures | \$ | \$ |
| Total | | Exposures | \$ | \$ |

4.1 Project Requirements

Contractor shall furnish scans of all exposures. Scans shall be clear and sharp in detail with uniform density, and free from dirt and other defects, resulting in a 14 micron resolution. The scans will comply with the requirements and specifications in Section C-9, Film Scanning Requirements.

4.2 Contract Deliverables

The scans are to be delivered as Tagged Image Format Files (TIFFs) on hard drives. Refer to Section C-9, Film Scanning Requirements. The Contractor shall submit scans in accordance with specifications and work statement (Section C), packaging and marking (Section D), inspection and acceptance (Section E), and delivery schedule (Section F):

B-5 ADMINISTRATIVE NOTICES

5.1 Non-Discrimination Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination in all of its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with

disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of Discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, SW., Washington, DC 20250-9410, or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

5.2 Availability of Funds (FAR 52.232-18, APR 1984)

Funds are not presently available for this contract. The Government's obligation under this contract is contingent upon the availability of appropriated funds from which payment for contract purposes can be made. No legal liability on the part of the Government for any payment may arise until funds are made available to the Contracting Officer for this contract and until the Contractor receives notice of such availability, to be confirmed in writing by the Contracting Officer.

PART 1 – THE SCHEDULE

SECTION C – DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

C-1 SCOPE OF CONTRACT

The general scope of this contract is to procure precise vertical aerial photography for one or more of the following purposes; natural resource inventory, stereomodel compilation, analytical aerotriangulation, orthophotography, and extraction of data by means of photogrammetric measurements. See Section B, Supplies or Services and Price/Costs, for specified use of photography and project requirements.

1.1 Technical Requirements and Specifications

The technical requirements and specifications of this contract are described in Section C, Description/Specifications/Work Statement, which defines the essential elements in securing high quality aerial photography. Any deviation from the specifications stated herein may cause increased time and effort in using the photography as intended.

1.2 Delivery and Performance

The delivery and performance requirements of this contract area described in Section F, Delivery or Performance. All contract materials shall be shipped within the time limits and to the place of delivery specified herein. Performance of the contract will be authorized and monitored by the Contracting Officer and/or the Contracting Officer's Representative.

1.3 Quality Control

Quality control shall be exercised by the Contractor continuously throughout the performance of the contract. Procedures shall be established to assure that all aerial photographic materials are delivered in accordance with the delivery schedule and at the required level of accuracy and quality. The Contractor shall acquire immediate reflights of any photography where coverage or film quality fails to meet minimum requirements of the contract specifications. USDA inspection and acceptance procedures are described in Section E, Inspection and Acceptance.

1.4 Location of Work

The project name(s), location, linear and square mile measure, and configuration of area to be photographed are described in Section B, Supplies or Services and Prices/Costs and shown on project map(s) in Section J, Exhibit 1, Project Maps.

1.5 Labor and Materials

The Contractor shall furnish all materials, equipment, transportation, superintendence, and labor as required herein. The Contractor shall execute and finish the aerial photographic

services for the project specified and shall deliver to the USDA all materials called for in Section F-1. Materials to be Delivered.

C-2 EQUIPMENT REQUIREMENTS

Any equipment (aircraft and cameras, in addition to those submitted at the time of offer) proposed for use by the Contractor must be approved by the Contracting Officer. If the proposed aircraft and camera are not owned by the Contractor, a written statement of availability from the owner of the equipment shall be provided to the Contracting Officer.

2.1 Aerial Camera and Filter

Tested and calibrated precision aerial cameras for taking aerial photographs are required and must meet USDA Aerial Camera Specifications (see Section C-3, Precision Aerial Mapping Camera and Attachment A, Revision 8/10/99, USDA Aerial Camera Specifications). Camera systems must be compatible with precision stereoscopic mapping instruments and with analytical mensuration procedures used in photogrammetric surveys and in preparing accurate topographic maps.

Proposed camera systems will be evaluated to determine if they meet the contract specifications based on a current USGS camera calibration test report. The Contracting Officer will have the right to require the removal of a camera from use when deficiencies in photographic imagery attributable to the camera are found to exist. Any camera removed from use by the Contracting Officer will not be returned to use on USDA projects until the cause of the malfunction is corrected to the satisfaction of USDA. That determination will be based on acceptable samples and/or an additional test by the Optical Science Laboratory of the USGS, if directed by the Contracting Officer.

2.2 Aircraft

All aircraft used in the performance of the work under this contract shall be maintained and operated in accordance with all regulations required by the U.S. Department of Transportation, Federal Aviation Administration (FAA). Aircraft operated in the acquisition of aerial photography under this contract shall be FAA certified to a service ceiling with operating load (crew, camera, film, oxygen, and other required equipment) of not less than the highest altitude specified in Section C-5.4(b), C-5.5(b), and C-5.6(b), Flight Altitudes.

When the flight plan and location of any project item in the proposed coverage falls within positive-control airspace, the aircraft must contain the appropriate equipment to operate in such positive-control areas within the purview of the Federal Aviation Regulations.

The design of the aircraft shall be such that when the camera is mounted with all its parts within the outer structure, an unobstructed field of view is obtained. The field of view shall be

shielded from the exhaust gases, oil, effluence, and air turbulence. Glass, plastic, or other window material shall not be interposed between the camera and the ground to be photographed unless authorized by the Contracting Officer.

2.3 Laboratory

The Contractor's laboratory shall be adequately equipped and staffed to facilitate the production of the specified photographic materials and other required products, or the Contractor shall have access to such facilities.

C-3 PRECISION AERIAL MAPPING CAMERA

3.1 USDA Aerial Camera Specifications

Only camera systems which meet the requirements of these specifications, as determined by a current USGS "Report of Calibration" test report, shall be used. Focal length and filter are specified in Section B-1.2 and B-2.2, Project Requirements. A camera system "Report of Calibration" will not be acceptable if more than three (3) years old at the scheduled date for receipt of offers. See Attachment A, Revision 8/10/99, SDA Aerial Camera Specifications.

3.2 Camera Operation

The camera and its mount shall be checked for proper installation prior to each mission. Particular attention shall be given to electrical circuits which control fiducial and camera data box lights and to the vacuum supply. In conformance with conventional photogrammetric practice, it is the preference of the Government that the contractor use camera configurations, that when installed in the aircraft, advance film parallel to the line of flight.

3.3 Camera Accessories

- (a) Automatic Exposure Control. An automatic exposure control device is permitted, but a manual override capability is required for some types of terrain to achieve proper exposure.
- (b) Camera Mount. The camera mount shall be regularly serviced and maintained and shall be insulated against aircraft vibration.

C-4 PHOTOGRAPHIC CONDITIONS

Photography shall be undertaken when skies are clear, free from smoke, clouds, cloud shadows, excessive haze, and well-defined images can be resolved. The ground shall be free from snow below timberline, standing water (other than natural or man-made ponds and lakes), flood waters from streams which have overflowed their banks, and wet ground which obscures field, soil or crop lines.

4.1 Photographic Periods

Photography shall be undertaken only during that portion of the day when the sun angle exceeds the minimum specified in Section B-1.2(d) and B-2.2(d), Minimum Sun Angle. Photographic operations shall be limited to the dates specified in Section B or as otherwise authorized in writing by the Contracting Officer as stated under Section F-5, Performance of the Work.

Project sun angle charts will be provided by the Government, as a convenience to the contractor, however, the contractor is ultimately responsible for imagery to be acquired during the time of day that meets or exceeds the specified minimum sun angle.

4.2 Priorities for Photographing Project Areas

The Contracting Officer may direct by written order certain projects or areas listed under an item to be photographed in a priority order, weather and ground conditions permitting. All reasonable effort will be directed toward providing a schedule of operations favorable to both the Government and Contractor.

C-5 FLIGHT PLAN REQUIREMENTS

The Contractor shall obtain precise vertical aerial photography in accordance with the following technical requirements.

5.1 Project Areas To Be Photographed

The boundaries and exact coverage of any specified area(s) described in Section B-1.2 and B-2.2, Project Requirements are determined by the Official Flight Plan Data. For a general representation of project area(s) coverage and flight plan see Section J, Exhibit 1, Project Maps.

5.2 Flight Plan Data

The Contractor will be furnished the Official Flight Plan Data as indicated in Section B-1.2(j) and B-2.2(j), Official Flight Plan Data. The Official Flight Plan Data will determine project location, flight direction, datum breaks, and the flight altitude of each line above mean sea level. The Contractor will be furnished the latitude and longitude coordinates, expressed in degrees, minutes, seconds, and decimal seconds, of all beginning and ending terminal points of project flight lines. Data will be in ASCII text format and may be provided on CD-ROM or electronically.

5.3 Coverage Requirements

Stereoscopic coverage of successive and adjacent overlaps of photographs shall be obtained by the Contractor as indicated on the Official Flight Plan Data furnished by the USDA.

- (a) Project Area Coverage: The beginning and ending photo centers of each flight line must be exposed on, or outside of, each terminal mark in order to provide full stereo neat model coverage to or beyond the project boundary. When the flight line runs parallel to the project boundary, the coverage required at the boundary line is the same as the minimum sidelap requirement for an adjacent flight.
- (b) Flight Breaks: Where a break in the flight line occurs, planned or unplanned, the terminal exposure of any new flight segment shall begin and end one exposure beyond the center point of the original flight segment terminal exposure. Flight direction shall be consistent through an entire flight line. Uninterrupted stereoscopic coverage is required at all flight breaks.
- (c) Reflight Photography: Reflights for aerial photography shall be centered over the plotted flight line with no less than the one exposure overlap specified above for flight breaks. All flight segments shall consist of no less than three (3) exposures in length.

5.4 **Project Flight Plan Description Line Item 1a: Kaibab 1:24,000**

- (a) Photographic Scale: The project flight plan has been designed to achieve a nominal photographic scale of 1:24,000. Allowable deviations from nominal scale due to terrain changes may range between scales of 1:20,100 to 1:29,800.
- (b) Flight Altitudes:
 - (1) Nominal Flying Height: 3,658 meters (12,000 feet) above mean ground elevation.
 - (2) Highest Altitude Specified: 6,157 meters (20,200 feet) above mean sea level.
 - (3) Allowable Deviation From Specified Flight Altitudes: 73 meters low (240 feet) or 110 meters high (360 feet) (See Section C-5.7, Deviation from Specified Flight Altitudes).
- (c) Overlaps:

| | <u>Optimum</u> | <u>Minimum</u> | <u>Maximum</u> |
|--|----------------|----------------|----------------|
| Endlap | 62% | 57% | 67% |
| Sidelap (North-South Flight Direction) | 31% | 15% | 45% |
| Sidelap (East-West Flight Direction) | 28% | 15% | 45% |

(d) Flight Lines:

| | North-South Flight Direction | East-West Flight Direction |
|--|---|---|
| Number of Lines: | 36 | 12 |
| Number of Datum Breaks: | 0 | 0 |
| Total Line Segments: | 36 | 12 |
| Direction: | Flight Lines 1 – 21 & Flight Lines 34 – 48 | Flight Lines 22 – 33 |
| Allowable Deviation from Flight Line at Nominal Scale: | 329 meters (1,080 feet) (See Section C-5.8, <u>Horizontal Deviation</u>) | 329 meters (1,080 feet) (See Section C-5.8, <u>Horizontal Deviation</u>) |
| In-Line Exposure Spacing: | 2,057 meters (6,750 feet) at nominal flying height | 2,057 meters (6,750 feet) at nominal flying height |
| Flight Line Spacing: | 3,804 meters (12,479 feet) at 35 degrees 0 minutes north latitude (2.5 minutes longitude). | 3,963 meters (13,001 feet) at 36 degrees 0 minutes north latitude (2.1429 minutes latitude). |

5.5 **Project Flight Plan Description Line Item 1b: Kaibab NF 1:12,000**

(a) Photographic Scale: The project flight plan has been designed to achieve a nominal photographic scale of 1:12,000. Allowable deviations from nominal scale due to terrain changes may range between scales of 1:9,700 to 1:16,200.

(b) Flight Altitudes:

- (1) Nominal Flying Height: 1,829 meters (6,000 feet) above mean ground elevation.
- (2) Highest Altitude Specified: 4,663 meters (15,300 feet) above mean sea level.
- (3) Allowable Deviation From Specified Flight Altitudes: 37 meters low (120 feet) or 55 meters high (180 feet) (See Section C-5.7, Deviation from Specified Flight Altitudes).

(c) Overlaps:

| | <u>Optimum</u> | <u>Minimum</u> | <u>Maximum</u> |
|----------|----------------|----------------|----------------|
| Endlap: | 62% | 57% | 67% |
| Sidelap: | 31%, | 15% | 45% |

(d) Flight Lines:

Number of Flight Lines: 24 lines
Number of Datum Breaks: 12 breaks
Total Number of Line Segments: 36 segments

Direction: North-South
Allowable Deviation from Flight Line at Nominal Scale: 165 meters (540 feet)
(See Section C-5.8, Horizontal Deviation).
In-Line Exposure Spacing: 1,029 meters (3,375 feet) at nominal flying height.
Flight Line Spacing: 1,902 meters (6,240 feet) at 35 degrees 0 minutes north latitude
(1.25 minutes longitude).

5.6 **Project Flight Plan Description Line Item 2: Lincoln NF 1:24,000**

- (a) Photographic Scale: The project flight plan has been designed to achieve a nominal photographic scale of 1:24,000. Allowable deviations from nominal scale due to terrain changes may range between scales of 1:20,000 to 1:31,800.
- (b) Flight Altitudes:
- (1) Nominal Flying Height: 3,658 meters (12,000 feet) above mean ground elevation.
 - (2) Highest Altitude Specified: 6,645 meters (21,800 feet) above mean sea level.
 - (3) Allowable Deviation From Specified Flight Altitudes: 73 meters low (240 feet) or 110 meters high (360 feet) (See Section C-5.7, Deviation from Specified Flight Altitudes).

(c) Overlaps:

| | <u>Optimum</u> | <u>Minimum</u> | <u>Maximum</u> |
|----------|----------------|----------------|----------------|
| Endlap: | 62% | 57% | 67% |
| Sidelap: | 28%, | 15% | 45% |

(d) Flight Lines:

Number of Flight Lines: 49 lines
Number of Datum Breaks: 3 breaks
Total Number of Line Segments: 52 segments
Direction: North-South
Allowable Deviation from Flight Line at Nominal Scale: 329 meters (1,080 feet) (See Section C-5.8, Horizontal Deviation)
In-Line Exposure Spacing: 2,057 meters (6,750 feet) at nominal flying height.
Flight Line Spacing: 3,937 meters (12,917 feet) at 32 degrees 0 minutes north latitude
(2.5 minutes longitude).

5.7 **Deviation From Specified Flight Altitudes**

Deviation from specified flight altitudes shall not exceed 2% low or 3% high of the flight height above mean ground elevation (see Section C-5.4(b), C-5.5(b), and C-5.6(b), Allowable Deviation from Specified Flight Altitudes).

5.8 Horizontal Deviation

Deviation from the plotted position of the flight line in excess of six (6) percent of a full print may cause rejection of any or all of the flight line (see Section C-5.4(d), C-5.5(d), and C-5.6(d), Allowable Deviation from Flight Line).

5.9 Overlap

Endlap (overlap in the line of flight) and sidelap (overlap between adjacent flights) shall be expressed in percentages of total print area stated in Section C-5.4(c), C-5.5(c), and C-5.6(c), Overlap. Percentages shall specify minimum, optimum, and maximum values for this spacing.

5.10 Crab

Any series of two or more photographs crabbled in excess of five degrees (5°) as measured between photographs in line and between adjoining lines may cause rejection of any or all of that particular flight line.

5.11 Tilt

Exposure made with the optical axis of the camera in a vertical position is desired. Tilt (departure from the vertical) on any exposure exceeding four degrees (4°) or relative tilt between any two successive exposures exceeding six degrees (6°) may be cause for rejection of any or all of the flight line.

C-6 AERIAL FILM

All aerial film used on a project item shall be from one film type and manufacturer and be purchased by the Contractor. Extreme care shall be exercised to insure proper exposure and processing of film to minimize vignetting due to differential exposure. This differential shall not exceed that which would result from a basic ¼ stop difference in exposure.

6.1 Salient Film Characteristics

Only medium or fine grained, unexpired, polyester base film of the type specified in Section B-1.2(f) and B-2.2(f), Aerial Film, shall be used. The film base shall have a nominal thickness of 4 mils and be 24.1cm (9.5 inches) wide. Color and B&W panchromatic emulsions shall be sensitive to the entire visible spectrum plus an extended red sensitivity to approximately 720 to 750 nanometers. Color infrared and black and white infrared shall be sensitive to the visible and near infrared spectrum from 400 to 900 nanometers.

6.2 Processing

All aerial film shall be processed according to manufacturer's instructions and under controlled sensitometric conditions, to achieve consistent and even development. Processing development gamma shall not vary more than 0.10 density units throughout the roll.

Prior to processing, a 21-step sensitometric wedge (in 0.15 density increments) shall be exposed on one end of each roll of film and shall remain in the roll when delivered to USDA. A leader of at least two (2) meters (6 feet) shall be retained on each end of the roll.

6.3 Film Densities – Color Films

All color negative film shall be exposed and processed in accordance to the manufacturer's specifications. Modified or non-standard processing is not permitted on this contract. Density measurements will be taken on negatives using a transmission densitometer with a 2mm probe for scales 1:36,000 and larger and with a 1mm probe for scales 1:36,000 and smaller. Readings will be made no closer than 38mm (1.50 inches) from the image edge.

- (a) All minimum (D-min) and maximum (D-max) densities as measured on the original aerial film negatives using status M filters shall be no lower nor higher than the values provided below. All density values include the Base + Stain value.

| <u>Max Base and Fog</u> | <u>D Min</u> | <u>D Max</u> |
|-------------------------|--------------|--------------|
| Red .25 | .60 +/- .15 | 1.60 |
| Green .15 | .50 +/- .15 | 1.45 |
| Blue .35 | .50 +/- .15 | 1.35 |

- (b) When required by the Contracting Officer to establish contract standards for color rendition, the Contractor shall supply representative samples of his work for evaluation. If approved, these shall be used as criteria for acceptance or rejection of the contract photographs.

6.4 Storage and Handling

- (a) Aerial Film: Storage, exposure, and handling of all photographic materials shall be in accordance with the manufacturer's recommendation. The film shall not be rolled tightly on spools or in any way stretched, buckled, distorted, or exposed to excessive heat.
- (1) Color and color infrared film shall be kept refrigerated in a waterproof container until one day before being exposed and returned to cold storage after exposure until processed.

- (2) Cold storage temperature shall not be higher than 4 degrees Celsius (40 degrees Fahrenheit). The film shall be processed as quickly as possible after exposure.
- (b) Film Containers: All rolls of aerial film shall be contained in Contractor furnished 5-3/4 inch diameter sturdy, cylindrical plastic cans.
- (c) Film Can Labels: Film can labels shall be securely affixed to the side of each can and positioned so that the label can be read when the film can is standing with the lid end up. Labels will be furnished by the Government upon contract award. The Contractor shall type or neatly letter each film can label with the required information according to the format example. See Section J, Exhibit 2, Figure 1, Film Can Label.

6.5 Dimensional Stability

The dimensional change in any direction across a 23cm (9 inch) distance shall not exceed 0.13mm (0.005 inch) at 18-24° Celsius (65-75° Fahrenheit) and 45-55% relative humidity.

6.6 Physical Quality

All aerial film shall be free from chemicals, stains, tears, scratches, abrasions, water marks, finger marks, lint, dirt, and other physical defects. The imagery shall be clear and sharp in detail and uniform in density. It shall be free from light streaks, static marks, and other defects that would interfere with the intended purpose. All film shall be thoroughly fixed and washed to insure freedom from chemicals and shall be of archival quality.

Film or prints found to contain an excess of residual chemicals, by testing in accordance with manufacturer's procedures, may be rejected or returned to the Contractor for refixing, rewashing, and re-editing.

6.7 Composition of Film Roll

No more than one project item may be placed on a roll. Projects with more than one photographic scale shall only have one photographic scale per roll. All aerial film on any one roll shall have the same roll number and shall consist only of exposures made with the same camera system (lens, cone, and magazine). Every exposure within a roll of film shall be titled regardless if it is rejected or unused for coverage and the data strip with clock (date/time) must appear between each frame of imagery. See Section C-7, Titling of Aerial Film.

Two (2) meters (6 feet) of blank or unused film shall be left beyond the first and last used exposure on each roll or segment to serve as leader and trailer. Some unexposed film must be retained at the beginning or end of a roll for the step wedge which is required for controlled processing.

Film spools having a flange diameter of approximately 13.2cm (5-3/16 inches) shall be used, and only that length of film which can be wound on a spool without strain, leaving at least 3.2mm (1/8 inch) of flange exposed, shall be placed on each spool.

6.8 Splicing Film

Splicing shall be accomplished with 19mm (3/4 inch) pressure sensitive polyester base tape. The splices shall be of the butt-joint type with tape placed on both sides of the splice. Particular care shall be given to the alignment of the film when splicing, with care taken to trim all excess binding tape in order that the film will be perfectly straight after splicing. A splice shall not be closer than 13cm (5 inches) from the image edge of any accepted frame.

C-7 TITLING OF AERIAL FILM

Every exposure within a roll shall be titled regardless if acceptable or unacceptable, used or unused, accepted or rejected by the Contractor's quality control check or the Government's inspection.

7.1 Required Titling

Each exposure shall be clearly titled in accordance with the following format example sketch and required project data:

| | | | | | | | | |
|---|----------|-------|--------|---|----|--------|---------|---|
| + | MM-DD-YY | 12:00 | USDA-F | + | 24 | 613070 | 209-222 | + |
|---|----------|-------|--------|---|----|--------|---------|---|

Date: Month-Day-Year in standard numeric notation (MM-DD-YY).

Time: The local standard time of exposure shall be titled only on the first and last used exposure in each strip and at each break in flight line, including breaks due to reflights.

Agency Designator: Government agency acronym: USDA-F

Scale: Nominal photographic scale represented by two digits to nearest thousand: 24.

Code: Project identification code: Kaibab NF is 613070 and Lincoln NF is 613080
See Sections B-1.4(b) and B-1.4 (b), Project Code.

Roll Number: Number in series, followed by the contract fiscal year of 2009. (109, 209, etc.)

Exposure Number: Per roll, number in unbroken series beginning with 1, not 001 or 01.

7.2 Type and Size of Characters and Application

The characters used in titling shall be standard block lettering 6.35mm (1/4 inch) high. They shall be sharp, legible, and uniformly applied with non-flaking black ink. The titling shall be placed on the non-emulsion side of the film and may be applied by use of an ink drawing pen or stamp. No smears or transfer of marking ink to other parts of the film roll will be permitted. Heat transfer lettering devices may only be used if prior consent is obtained from the Contracting Officer.

7.3 Location of Titling Characters

Identifying data shall be placed in line along the most northerly inflight (endlapped) edge of the aerial exposures of north-south flights and shall be placed along the western edge of the exposures in east-west flights. Titling shall be positioned so that the characters are 2.5mm (1/10 inch) from the image edge and 2.5mm (1/10 inch) from the corner fiducials.

7.4 Assigning Roll Numbers

- (a) Original Photography: All rolls of film submitted shall be numbered consecutively beginning with one as described in Section C-7.1, Required Titling.
- (b) Reflight Photography: Rolls of film used in the photography of reflights ordered by the USDA shall also be numbered consecutively starting with the next highest roll number as assigned to the original rolls. The contract fiscal year specified in Section C-7.1, Required Titling, shall be retained on all reflight photography.

7.5 Rejected or Not Used Exposures

Every exposure within a roll shall be titled regardless if unused or used, rejected or accepted. No exposure shall be removed from the roll unless authorized by the Contracting Officer or representative.

C-8 PHOTOGRAPHIC PRINTS

All photographic prints shall be made from the original aerial film and furnished for inspection. Photographic prints shall be of such quality to bring out all the details of the film image and to clearly indicate the acceptability of the coverage and technical requirements.

8.1 Color Balance Samples

Prior to printing the color contact prints, the contractor must furnish samples of prints for a selection of the contrast and/or color balance to be used for the contact prints prior to printing. The contractor must furnish a minimum of three (3) sets of color contact prints produced from the original film for a selection of contrast and/or color balance. One set shall represent the type of ground cover specified in Section B-1.4, Photographic Operations, another set of the non-typical ground cover, and the final set shall represent both typical and non-typical ground cover. Each three-print set shall be made from the same exposure on a roll of film with two (2) of the contact prints within the set shifted 2.5 to 5 cc filtration in each direction away from the central color balanced print.

8.2 Inspection Print Titling

All inspection prints shall be properly titled in accordance with Section C-7, Titling of Aerial Film, above.

8.3 Inspection Print Preparation – Color Contacts

Full-size (9"x9", 23cm x 23cm) color contact prints shall be grouped and stacked by flight line number. The prints in each flight shall be arranged in sequence from north to south

for N-S flights, west to east for E-W flights. Each flight shall be bound with a sturdy paper band and identified by flight line number, roll number, and exposure number range.

8.4 Materials to be Used

Photographic papers of proper contrast must be used in making suitable inspection prints to bring out all the details of the film image. Prints must be properly developed and thoroughly fixed and washed. They must be clean and free from stains, blemishes, uneven spots, air bells, fog, and finger marks.

C-9 FILM SCANNING REQUIREMENTS *(only applicable if option 2 is exercised)*

The Contractor shall scan every exposure accepted by the Contractor's own quality control check. The scan shall include the film image from edge to edge of the film and include the titling, data strip and all fiducial marks associated with the image. The scans shall be clear and sharp in detail with uniform density, and free from dirt and other defects in the digital imagery in accordance with the following requirements:

9.1 Resolution

The Contractor shall scan the imagery at a 14 micron resolution. The contractor shall not upsample the image into achieve the final image product.

9.2 Bit Depth

Imagery shall be scanned and saved at the maximum bit depth allowed by the scanner in order to ensure that information is not lost in the tonal and color balance steps due to quantization. If scanner bit depth is greater than 8-bits per band, the Contractor shall convert the scan to an 8-bit by applying the appropriate look up table.

9.3 Histogram.

The histogram of scanned images shall represent all the pixels with the digital image without clipping highlight or shadow detail from the image.

9.4 File Format

Tagged Image Files (TIFF). Scanned files shall be submitted in accordance with the Baseline TIFF 6.0 file format as defined in the TIFF 6.0 Specifications. All baseline TIFF 6.0 files shall store data as uncompressed RGB full-color images as defined in the specification using the "little-endian" byte order and shall only contain one image file directory (IFD). All TIFF files submitted shall be readable by older applications that assume TIFF 5.0 or an earlier version of

the specification. TIFFs that use designated "Extended TIFF 6.0 file" features shall not be acceptable. Features designated as "not recommended for general data interchange" are considered extensions to the Baseline TIFF 6.0 specification, and will not be acceptable. This includes TIFFs that use one of the major new extensions such as "tiled images". In the TIFF 6.0 specification, the term "tag" refers only to the identifying number, the term "field" refers to the entire field, including the value. Tags that are defined by the TIFF specification are called public tags and shall not be modified outside of the parameters given in the latest TIFF specification. Tags numbered 32768 or higher, sometimes called private tags, are reserved and shall not be acceptable. Enumeration constants numbered 32768 or higher are reserved and shall not be acceptable. Do not choose your own tag numbers, use only those specified in the Baseline TIFF 6.0 Specification for RGB full-color. Tags numbered in the "reusable" 65000-65535 range shall not be acceptable.

9.5 Scan File Naming Convention

The naming convention shall use the following template: <code>_<roll>_<exposure>.tif. Where code is the project code defined in Sections B-1.2(a) and B-2.2(a), roll is the roll number assigned in section C-7, Titling of Aerial Film, and exposure is the exposure number assigned in Section C-7, Titling of Aerial Film.

Example: 613070_109_157.tif

A directory shall be created on each hard drive named "<forest>" where <forest> is the short name identifier for the forest.

Example: Kaibab NF
Lincoln NF

9.5 Scan Data File Description

Contractor shall furnish a Scan Data File in ASCII comma delimited text format containing, at a minimum, the following data:

File Name: scan_data_item.txt (i.e. scan_data_item1.txt)

| Description | Number of Characters in Field |
|--|-------------------------------|
| Scan File Name: | 30 |
| Scan resolution in microns | 4 |
| Samples = Columns | 4 |
| Lines = Rows | 4 |
| Scanner Manufacturer and Model Number: "Free text with quotations" (50 characters max) | 50 |

Example:
scan_05109_020291r_2009.tif, 40,5747, 5977, "LHS XXXXX Photogrammetric Scanner"

9.6 Media

All scanned images shall be delivered on external Hard Drives. See Section D-1.5, External Hard Drives. The hard drive shall have a label attached identifying the digital contents of the hard drive in accordance with Section J, Exhibit 2, Figures 3, Hard Drive Label.

9.7 Metadata

Contractor shall create a single FGDC compliant metadata file that describes the scanning process.

C-10 ABGPS/IMU DATA FILES (*applicable only if option 1 is exercised*)

10.1 ABGPS/IMU Data Files

The Contractor shall collect and post-process ABGPS, and IMU if option 1b is exercised. The Contractor shall submit both the raw and processed data. The sensor-to-GPS-antenna offset vector components (“lever arm”) shall be accurately measured and described in the metadata. The offset vector components shall be re-determined each time the sensor or GPS antenna is moved or repositioned. The processed data shall incorporate the offset vector components in determining the correct solution and shall be projected in the corresponding UTM Zone, NAD 83 and be compatible with ERDAS Imagine, Leica Photogrammetry Suite (LPS), and ESRI Stereo Analyst for ArcGIS. The Contractor shall create a FGDC compliant metadata file for the ABGPS/IMU.

10.2 Supplemental GPS Ground Data

Differentially corrected GPS Ground Data used to supplement the Airborne GPS positional data adjustment shall be delivered in a non-proprietary format mutually agreeable to the Government and Contractor.

10.3 Regional Settings

All digital files, including imagery and metadata, shall be created using standard ANSI English-US setting. For example, periods (ACII 46) shall be used to separate the whole number from the fractional portion when recording decimal numbers and data representing a long date shall be recorded as “Wednesday, August 17, 2009 5:09:38 PM.”

10.4 Media

ABGPS/IMU data files and FGDC metadata shall be delivered on a CD-ROM defined in Section D-1.3, CD-ROM. The files shall be stored in a single subdirectory under the root directory called “gps” or “imu”.

All supplemental ground control files shall be delivered on CD-ROM as defined in Section D-1.3, CD-ROM. The files shall be stored in a single subdirectory under the root directory called “gps_base”.

C-11 DATA FILES

11.1 Photo-Center Data File Description

Contractor shall prepare a digital photo-center data file for all aerial photography acquired under this solicitation. The file(s) shall be provided in ASCII comma delimited text format. A comma delimited header line shall precede the data in each file as shown in the example below. The latitude/longitude coordinates shall be expressed in decimal degrees with six (6) decimal places of precision (for example, 44.719360, -116.414981), formatted to NAD83 datum, and be accurate within 30 meters (100 feet), 5 meters (16.4 feet) if option 1 is exercised, of the true photo center location. Longitude must be expressed as negative space for western hemisphere. The photo-center data shall include the following attributes:

| <u>DESCRIPTION</u> | <u>MAXIMUM NUMBER</u> <u>OF CHARACTERS</u> | <u>HEADER</u> |
|--|---|---------------|
| | <u>IN FIELD</u> | |
| Project Code | 7 | code |
| Film Roll Number | 5* | roll |
| Exposure Number | 3 | exp |
| Date of Exposure (YYYYMMDD) | 8 | date |
| Flight Line Number | 3* | fltln |
| Camera Lens Serial Number | 10 | lens |
| Calibrated Focal Length in millimeters(mm) | 7 | cfl |
| Latitude Coordinate (DD.DDDDDD) | 9 | lat |
| Longitude Coordinate (-DDD.DDDDDD) | 11 | long |
| Flight Altitude in meters at camera (MMMMM.MM; MSL) | 8 | alt |

*Roll and flight line numbers should be padded with leading zeros as necessary.

Example:

code,roll,exp,date,fltln,lens,cfl,lat,long,alt

613070,00109,1,20090812,016,3108,152.474,35.302301,-111.930141,5733.02

613070,00109,2,20090812,016,3108,152.474,35.310213,-111.930142,5733.02

11.2 Metadata File Description

Contractor shall prepare a metadata file describing the photo-center data listed above. At a minimum, the file shall contain the following data:

Project Name (Name as appears in Section B.1 and B.2)
Nominal Photo Scale
Nominal Lens Focal Length
Film Type (CN)
Number of Film Rolls
Coordinate System Datum
Coordinate Data Collection Method (GPS, Digitizing, etc.)
Date ASCII Exposure Data File was created

Example: Kaibab, AZ 1:24,000 153mm CN 15 NAD83 GPS 08212009

11.3 Media Requirement

The photo-center data and metadata shall be furnished on one or more CD-ROMs and shall be prepared according to the inspections specified in Section C-11, Data Files. File shall be labeled with project identification, and shipped in a package designed to protect the CD- ROM.

PART I – THE SCHEDULE
SECTION D – PACKAGING AND MARKING

D-1 PREPARATION OF MATERIALS FOR SHIPMENT

All deliverables shall be labeled and shipped in packaging designed for their protection.

1.1 Film

All film shall be thoroughly cleaned and placed on spools of the specified size stated in Section C-6, Aerial Film, with the emulsion facing the core of the spool. The use of any adhesive tape product, such as masking tape, which leaves residual adhesive on the film is prohibited.

- (a) Film Cans: All aerial film rolls shall be shipped in Contractor furnished 5-3/4 inch diameter sturdy cylindrical plastic cans.
- (b) Film Can Labels: Film can labels will be furnished by the USDA. The Contractor is required to prepare a label for each can in accordance with the example in Section J, Exhibit 2, Figure 1, Film Can Labels. The label shall be fastened to the outside of the can in accordance with Section C-6.4(c), Film Can Labels.

1.2 Inspection Prints

Inspection prints shall be prepared according to instructions specified in Section C-8, Photographic Prints. Prints shall be organized by flight line, bound with sturdy paper bands, and identified by project name, flight line number, roll number(s), and exposure name range(s).

1.3 Compact Disks

All compact disks (CDs) shall be delivered on archival media, 700 Megabytes (80-minute) per disk CD-R, hybrid ISO 9660 Mode 1 format using level 2 interchange. The contractor must insure that each and every copy session has been properly closed. No multi-session enabled CDs shall be acceptable. The CD media shall have a label attached identifying the digital contents of the CD in accordance with Section J, Exhibit 3, Figures 1, CD/DVD Label, (thermal printed CDs are acceptable). In addition to the packaging requirements in D-2, all CD media shall be packaged in standard single CD jewel cases (5-5/8" x 4-15/16" x 3/8") with a clear front cover. The CD label should be readable without opening the case or removing the CD from the case. "Slim" or other non-standard sized jewel cases will not be accepted.

1.4 Digital Versatile Disk.

All digital versatile disks (DVDs) shall be delivered on archival media, single-sided, 4.7 Gigabyte (120-minutes) DVD-R discs. DVD-R(A), DVD-RW, DVD+R, or DVD+RW formats are not acceptable. DVDs shall meet all other requirements, except of the media type, required for CDs (see paragraph above).

1.5 External Hard Drives.

The delivery media for the image files shall be External Combo USB2.0/IEEE1394 (Firewire) hard drives. All external hard drives shall be “Combo” style drives, capable of both USB2.0 and IEEE-1394 (Firewire) connections. The drives shall be formatted using Microsoft’s NTFS file system. The drives shall become property of the Government and will not be returned to the Contractor. Each drive shall have a label attached directly to the drive identifying the project contained on the drive in accordance with Section J, Exhibit 3, Figure 2, External Hard Drive Label.

D-2 PACKAGING FOR SHIPMENT

All material shall be packed for shipment in such a manner that will insure acceptance by common carrier and safe undamaged delivery at destination. Containers and closures shall comply with the Interstate Commerce Commission regulations, Uniform Freight Classification rules, or regulations of other carriers as applicable to the mode of transportation. Damaged materials will be replaced by the Contractor at no cost to the Government. A packing slip shall accompany each shipment and shall itemize all material included in the shipment.

D-3 SHIPPING RECEIPTS

Receipts from common carriers for shipment of materials shall be retained by the Contractor and be made available to the Contracting Officer upon request.

D-4 SHIPPING CONTAINER MARKINGS

All shipping containers shall be clearly marked with delivery address. See Section F-2, Place of Delivery.

PART I – THE SCHEDULE

SECTION E – INSPECTION AND ACCEPTANCE

E-1 INSPECTION AND ACCEPTANCE (FEB 1988)(AGAR 452.246-70)

The Contracting Officer or the Contracting Officer's duly authorized representative will inspect and accept the supplies and/or services to be provided under this contract. Inspection and acceptance will be performed at:

Aerial Photography Field Office
2222 West 2300 South
Salt Lake City, Utah 84119

E-2 INSPECTION PROCEDURE

All materials specified in Section F-1 will be inspected to determine conformance to all contract requirements and specifications. Inspections will be performed at the APFO facility in Salt Lake City, Utah. (Refer to FAR 52.246-2, Inspection of Supplies-Fixed Price and FAR 52.246-4, Inspection of Services-Fixed Price.)

If inspection of materials reveal marginal deficiencies, a review by the user agency may be performed to determine if deficiencies may cause increased time and effort in using the photography as intended. If any of the services do not conform with the contract requirements, the Government may require the Contractor to perform the services again in conformity with contract requirements, at no increase in contract amount. When the defects in services cannot be corrected by re-performance, the Government may:

- (a) Require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and
- (b) Reduce the contract price to reflect the reduced value of services performed.

E-3 INSPECTION SCHEDULE

The Government will make a reasonable effort to inspect all material specified within 30 calendar days from the date of the final item received at the point designated. Should the inspection procedure be delayed longer than 30 days, the Contractor will be notified of the reason(s) for delay and given the estimated completion date.

Contract materials will be inspected in the order of their receipt, unless otherwise prioritized by the Government. Inspection of project areas where the photographic season is open will be given priority over projects for which the season has closed. The Contractor will be notified in writing whether the

materials are satisfactory and what areas, if any, shall be re-photographed and what materials, if any, shall be remade because of nonconformity with contract requirements.

E-4 PRELIMINARY INSPECTION

USDA reserves the right to call in photographic materials for incomplete project areas at any time during the contract period as deemed necessary, to determine extent of acceptability. APFO will then perform a preliminary inspection of materials that have been determined questionable from the contractor's inspection, within 10 days of receipt, provided that the photographic season has not ended and will not end within 20 days of submission. In the event rejected material require reflights, the contractor shall undertake such reflights within 5 calendar days after receipt of notice.

E-5 PARTIAL PHOTOGRAPHY

If the contractor obtains only partial photography for any project during the season, all partial photography shall be processed according to the requirements specified for completed photography. The requirement for processing partial photography may be waived only by the Contracting Officer.

E-6 ACCEPTANCE

Final acceptance will be made after inspection by the Government of all required materials delivered at the specified destination. The acceptance date shall be the date of the letter by the Government to the contractor stating all materials are acceptable and invoice may be submitted.

Partial acceptance on any uncompleted area will be made only after the photographic season has ended and all materials required for the partial area have been delivered, inspected, and accepted by the Government. The acceptance date shall be the date of the letter by the Government to the Contractor identifying the amount of partial acceptance and referring the contractor to the Contracting Officer.

E-7 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)(FAR 52.252-2)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

52.246-02 Inspection of Supplies – Fixed Price (AUG 1996)

52.246-04 Inspection of Services – Fixed Price (AUG 1996)

52.246-16 Responsibility for Supplies (APR 1984)

PART I – THE SCHEDULE

SECTION F – DELIVERIES OR PERFORMANCE

F-1 MATERIALS TO BE DELIVERED

All materials shall conform to requirements stated herein and upon receipt become the property of the USDA. The materials shall be delivered as required and consist of the following items. The Contractor shall maintain a copy of the digital data until APFO acknowledges receipt. The materials referenced in Section B for Project Item(s) shall be delivered as required and consist of the following:

1.1 ORIGINAL AERIAL FILM

| Item | Requirement |
|------------------------------|---|
| Format | None |
| Media | Photographic Film (see Section C-6, Aerial Film) |
| Quantity | One (1) Set |
| Date of First Submittal | No later than thirty (30) calendar days after acquisition period. |
| Submittal Frequency | Once |
| Government Approval Required | Yes (see Section E) |
| Required Metadata | None |

1.2 PRINTS FROM THE ORIGINAL AERIAL FILM

(a) COLOR BALANCE SAMPLES

| Item | Requirement |
|------------------------------|---|
| Format | Full-size 9x9 Color Contact Prints |
| Media | Color Prints (see Section C-8, Photographic Prints) |
| Quantity | One (1) Set of Three (3) Samples (see Section C-8.1, Color Balance Samples) |
| Date of First Submittal | No later than two (2) weeks prior to the end of the season. |
| Submittal Frequency | Once |
| Government Approval Required | Yes (see Section E) |
| Required Metadata | No |

(b) COLOR INSPECTION PRINTS

| Item | Requirement |
|------------------------------|---|
| Format | Full-size 9 x 9 Color Contact Prints |
| Media | Inspection Prints (see Section C-8, Photographic Prints) |
| Quantity | One (1) Set, See Section C-8, Photographic Prints |
| Date of First Submittal | No later than thirty (30) calendar days after acquisition period. |
| Submittal Frequency | Once |
| Government Approval Required | Yes (see Section E) |
| Required Metadata | No |

1.3 ABGPS AND IMU DATA FILES *(Applicable Only if Option 1 is Exercised)*

| Item | Requirement |
|------------------------------|---|
| Format | ASCII tab delimited file |
| Media | CD-ROM (see Section D-1.3) |
| Quantity | Two (2) sets of ABGPS Data – One (1) processed and One (1) unprocessed Two (2) sets IMU Data – One (1) processed and One (1) unprocessed |
| Date of First Submittal | No later than thirty (30) calendar days after acquisition period. |
| Submittal Frequency | Once |
| Government Approval Required | Yes (see Section E) |
| Required Metadata | No |

1.4 SCANNED DIGITAL IMAGE TILES *(Applicable Only if Option 2 is Exercised)*

| Item | Requirement |
|------------------------------|--|
| Format | TIFF |
| Media | Hard Drive (see Section D-1.5) |
| Naming Convention | See Section C-9, Scanning Requirements (i.e. “613070_109_237.tif”) |
| Quantity | One (1) per tile (or exposure) |
| Date of First Submittal | No later than thirty (30) calendar days after acquisition period. |
| Submittal Frequency | Once |
| Government Approval Required | Yes (see Section E) |
| Required Metadata | Yes (See Section C-9.7) |

1.5 PROGRESS REPORTS

| Item | Requirement |
|------------------------------|---|
| Format | See Exhibit 4 |
| Media | Electronic mail |
| Quantity | One per day per crew |
| Date of First Submittal | Daily (as required in accordance with Section C- 7.1) |
| Submittal Frequency | Daily (only required for days that aerial acquisition was accomplished) |
| Government Approval Required | No |
| Required Metadata | None |

1.6 PROJECT DATA FILES

(a) PRODUCTION PROCESS DESCRIPTION

| Item | Requirement |
|------------------------------|---|
| Format | ASCII text file |
| Media | Hard Drive (see Section D-1.2) |
| Quantity | One (1) for Scanned image tiles |
| Date of First Submittal | No later than thirty (30) calendar days after acquisition period. |
| Submittal Frequency | Once |
| Government Approval Required | No |
| Required Metadata | None |

(b) PROJECT DATA FILE DESCRIPTION

| Item | Requirement |
|------------------------------|--|
| Format | ASCII comma delimited text file |
| Media | Hard Drive (see Section D-1.2) |
| Quantity | One (1) |
| Date of First Submittal | Delivered with Production Process (see Section F-1.6(a)) |
| Submittal Frequency | Once |
| Government Approval Required | No |
| Required Metadata | None |

(c) SCANNED DATA FILE DESCRIPTION (*Applicable Only if Option 2 is Exercised*)

| Item | Requirement |
|------------------------------|---|
| Format | ASCII comma delimited text file |
| Media | Hard Drive (see Section D-1.2) |
| Quantity | One (1) per project item |
| Date of First Submittal | Delivered with Production Process (see Section F-1.6(a)). |
| Submittal Frequency | Once |
| Government Approval Required | No |
| Required Metadata | Yes |

(d) PHOTO-CENTER DATA FILE DESCRIPTION

| Item | Requirement |
|------------------------------|---|
| Format | ASCII comma delimited text file |
| Media | Hard Drive (see Section D-1.5) |
| Quantity | One (1) per project item |
| Date of First Submittal | Delivered with Production Process (see Section F-1.6(a)). |
| Submittal Frequency | Once |
| Government Approval Required | No |
| Required Metadata | Yes |

F-2 PLACE OF DELIVERY – FOB DESTINATION, WITHIN CONSIGNEE’S PREMISES

The materials to be furnished hereunder shall be delivered, all transportation charges paid by the Contractor, and in accordance with FAR Clause 52.247-35, F.o.b. Destination, Within Consignee’s Premises to:

U.S. Department of Agriculture
Aerial Photography Field Office
Contracting Room 11 – Resource
2222 West 2300 South
Salt Lake City, Utah 84119

Offers submitted on a basis other than F.o.b. Destination within consignee’s premises will be deemed unacceptable or rejected as non-responsive.

F-3 SCHEDULE FOR DELIVERY OF MATERIALS

All photographic materials and data files required in this contract shall be shipped within time limits specified below. Failure to ship within this period will be considered as failure by the contractor to prosecute the work as to ensure completion and will render the contract subject to default. Date of shipment will be shown by postmark or carrier receipt.

3.1 Color Balance Samples

Color Balance Samples shall be delivered prior to the delivery of the color contact inspection prints. The Contractor may submit the color balance samples when the ground cover samples specified in section C-8.1 have been acquired, but no later than two weeks prior to the end of the photographic season. See Section C-8.1, Color Balance Samples, for instructions.

3.2 Original Materials – Delivery Schedule

All delivery materials required for all original and USDA ordered reflight photography for this project shall be shipped not later than 30 calendar days after the photographic season has ended, or any season extension thereof. The following delivery schedule shows the required shipping date, established 30 days from the end of the photographic season.

| DELIVERY SCHEDULE | | |
|-------------------|------------------------|-------------------------|
| Project Item | Project Name and State | Required Shipped Date |
| 1 | Kaibab, NF, AZ | October 30, 2009 |
| 2 | Lincoln NF, NM | October 30, 2009 |

Early shipment of delivery materials is encouraged and will better assure timely inspection and avoidance of peak seasonal workload delivery.

3.3 Data File Remake – Delivery Schedule

Upon the completed inspection and approval of the above mentioned data file materials the contractor will be advised of the approved coverage for the project. A final version of the photo center file shall be prepared and delivered on or before 7 days from contractor receipt of the approved coverage listing.

3.4 Photographic Materials Remake – Delivery Schedule

Remake materials requested by USDA shall be shipped as soon as possible after correction is made, but no later than 15 days after receipt in the Contractor's facility of the materials or data required to make the corrections. Signed delivery receipts will be required to verify date of receipt of such data or materials by the Contractor.

F-4 CONTRACTOR'S RESPONSIBILITIES

The Contractor shall: furnish all materials, superintendence, labor, transportation, and equipment; execute and complete the aerial photography of the area(s) specified and deliver to the USDA the materials called for; execute all work expeditiously, to the satisfaction of the Contracting Officer or authorized Contracting Officer's Representative(s).

F-5 PERFORMANCE OF THE WORK

The Contracting Officer will authorize and direct the photographic season to begin or end anytime within thirty (30) days before or after the approximate photographic dates given in Section B, depending upon the weather, ground, foliage, and sun angle conditions required for the project item or area. No photography shall be undertaken before the Notice to Proceed is issued or after the final date of the photographic season (or its extension) has occurred. Weather and ground conditions for all project locations will be monitored daily to determine Contractor compliance to performance requirements.

5.1 Notice To Proceed

The Notice to Proceed will be given by telephone and confirmed in writing by regular mail. Failure of the Contractor to proceed with flights on an item within 10 calendar days after a "Notice to Proceed" is given, may be considered as evidence of failure to prosecute the work so as to ensure its timely completion. As evidence of performance, Progress Reports shall be submitted.

5.2 Progress Reports

Progress Reports indicating the progress made in acquiring project aerial photography shall be prepared in accordance with instructions in Section J, Exhibit 3. Reports shall be submitted only for days performance was accomplished.

Each progress report shall be sent not later than the day following performance by e-mail. In the event that day is a holiday or non-business day, the report shall be sent on the next business day. Separate reports are required from each photographic crew assigned to a project item. Such "next day" reporting shall start when the Contractor receives the Notice to Proceed, and continue until the item is completed or the photographic season and any extension ends.

If it is determined that a season extension or additional flying is required, or re flights are ordered by USDA, reports covering such performance periods shall be submitted.

5.3 Photographic Season Extension

The Government reserves the right to extend the photographic season of this contract beyond the approximate photographic period indicated in Section B. A lower minimum sun angle requirement may be necessary to allow the season extension.

The Government may extend the season of this contract, at no increase in price, by written notice to the Contractor at any time prior to the end of the photographic season. (Refer to FAR 52.217-08 “Option to Extend Services”.)

5.4 Extension of the Term of the Contract

IT IS THE EXPRESSED INTENT OF THE GOVERNMENT TO HAVE ALL PHOTOGRAPHY REQUIRED UNDER THIS CONTRACT COMPLETED WITHIN THE PHOTOGRAPHIC PERIOD SPECIFIED IN SECTION B.

The Government reserves the right to extend the term of the contract if all photography under the contract has not been secured within the photographic period, through no fault of the Contractor.

The Government may extend the term of this contract, at no increase in price, by written notice to the Contractor within six (6) months after the photographic season has ended. The Contracting Officer may exercise this option twice. (Refer to FAR 52.217-09 “Option to Extend the Term of the Contract”.)

F-6 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)(FAR 52.252-2)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

52.242-15 Stop Work Order (AUG 1989)

52.242-17 Government Delay of Work (APR 1984)

PART I – THE SCHEDULE

SECTION G – CONTRACT ADMINISTRATION DATA

G-1 CONTRACTING OFFICE

The Aerial Photography Field Office (APFO) of the United States Department of Agriculture (USDA), Farm Service Agency (FSA), is responsible for the solicitation, award, and administration of this contract. Communications shall be directed to:

Contracting Officer, USDA - FSA
Aerial Photography Field Office
2222 West 2300 South
Salt Lake City, Utah 84119

Telephone (801) 844-2910
Facsimile (801) 956-3640

Written correspondence shall reference the contract number and/or solicitation number plus project item number.

G-2 CONTRACTING OFFICER’S REPRESENTATIVE

Each awarded contract item may have a Contracting Officer’s Representative (COR) or a Contracting Officer’s Technical Representative (COTR). Such designations will be made either at the time of award or by appointment letter.

G-3 CONTRACT INTERPRETATION

Technical assistance regarding interpretation of the specifications and/or terms of the contract will be provided by the Contracting Officer or the COR. Only the Contracting Officer has authority to award, modify, and terminate contracts. The Contractor is encouraged to visit the USDA-APFO facilities and discuss the contract and inspection procedures.

3.1 Discrepancies

Any discrepancy in the schedule or official flight maps shall be immediately called to the attention of the Contracting Officer for decision. A discrepancy shall not be adjusted without approval of the Contracting Officer, except at the Contractor’s own risk and expense.

G-4 PROGRESS REPORTS

Progress Reports are required for this contract. If completion instructions contained in the report (see Section J, Exhibit 3) are not adequate, contact the Contracting Officer for clarification. It is essential that all items of information requested on the report be provided. Progress Reports shall be prepared and submitted for performance periods during the photographic season as stated in Section F-5.2. Failure to comply with this requirement may result in \$25,000 or 5 percent of the contract amount, whichever is less, being withheld from payment. (Refer to FAR 52.242-2, Production Progress Reports.)

G-5 SUBCONTRACTS

Before entering into a subcontract covering any part of the work called for, the Contractor shall inform the Contracting Officer and submit information required by the Contracting Officer to determine acceptability and approval of the anticipated subcontractors equipment to be used.

G-6 CHARGES TO CONTRACTOR

The USDA may, at its option, correct deficiencies found to exist in connection with photographic materials submitted by the Contractor and deduct from the Contractor's vouchers the cost thereof to the Government. When the deficiencies to be corrected are such that the cost exceeds \$100.00 at current prices, such corrections will be made only with the prior approval of the Contractor, except in the event of termination for default.

G-7 PARTIAL PAYMENTS

For a partially completed project item or a partially completed area within a project item, listed as a line item in Section B, acceptance and payment will be made on a linear mile basis at the rate of 90 percent of the amount due. Any payment thus made is a partial payment of the contract. Upon acceptance of the complete project item or line item, the remaining payment, to total the full payment due for the project item or line item, will be made. Partial payments shall be approved by the Contracting Officer under the conditions stated in FAR 52.232-1, Payments.

G-8 PAYMENT DUE DATE

The required payment date will be 30 calendar days after:

- (a) The date of actual receipt of a proper invoice by the office designated to receive the invoice, or the date all contract deliverables are accepted, whichever is later.
- (b) The date of the check issued in payment or the date of the payment by electronic funds transfer shall be considered to be the date payment is made.

G-9 INTEREST ON OVERDUE PAYMENTS

The Prompt Payment Act, Public Law 100-496 (96 Stat. 85, 31 USC 1801) is applicable to payments under this contract and requires the payment to Contractors of interest on overdue payments and improperly taken discounts. Determinations of interest due will be made in accordance with the provisions of the Prompt Payment Act and Office of Management and Budget Circular A-125.

G-10 INVOICES

Invoices shall be submitted in an original and two copies to the Contracting Officer designated in this contract or on the delivery order to receive invoices. To constitute a proper invoice, the invoice must include the following information and/or attached documentation.

- (a) Name and address of the Contractor
- (b) Invoice date.
- (c) Contract number, or other authorization for supplies delivered or services performed.
- (d) Description, quantity, unit of measure, unit price, and extended price of supplies delivered or services performed.
- (e) Shipping and payment terms.
- (f) Name (where practicable), title, phone number, and complete mailing address of responsible official to whom payment is to be sent.
- (g) Any other information or documentation required by the contract.
- (h) While not required, Contractors are strongly encouraged to assign an identification number to each invoice.

Notice of an apparent error, defect, or impropriety in an invoice will be given to the Contractor within 7 days of receipt of an invoice and properly documented.

PART I – THE SCHEDULE

SECTION H – SPECIAL CONTRACT REQUIREMENTS

H-1 PERMITS AND CLEARANCES

It shall be the responsibility of the Contractor to determine and secure all necessary permits and clearances for controlled or restricted airspace areas.

The Contractor shall contact the Federal Aviation Administration (FAA) watch supervisor in charge of the Air Traffic Control (ATC) facility to gain approval to operate within controlled airspace. It is suggested that pre-flight coordination, at least one week in advance, will result in better communication. The FAA suggests that on the day of the flight the photo mission pilot contact the ATC facility and:

- (a) Confirm previous arrangements,
- (b) State that “this is a photo survey mission” via air/ground communications, and subsequently inform the controller when the flight line is commenced.

Military Operation Areas (MOA) will be identified in advance, and if necessary a contact for airspace clearance established. The Contractor is responsible for obtaining flight approvals and security clearances if required by the U.S. Department of Defense. Photographic materials of classified areas shall be stored, handled, and shipped in accordance with existing security regulations. In the event of difficulty, the Contracting Officer shall be contacted for guidance and/or assistance.

H-2 AIRCRAFT REGULATIONS AND CERTIFICATIONS

All aircraft used in the performance of the work under this contract shall be maintained and operated in accordance with all regulations required by the U.S. Department of Transportation, Federal Aviation Administration (FAA). Aircraft operated in the acquisition of aerial photography under this contract shall be FAA certified to the highest flying altitude specified in the solicitation.

H-3 OWNERSHIP OF PHOTOGRAPHIC MATERIALS

All original photographic materials shall become the property of the Government upon formal acceptance. See FAR 52.246-16, Responsibility For Supplies. No reproductions shall be made prior to inspection by the Government unless specified in the contract or authorized by the Contracting Officer.

H-4 NOTICE TO THE GOVERNMENT OF DELAY

The Contractor shall immediately, upon becoming aware of any difficulties in meeting performance requirements during the photographic season or when difficulties are encountered which may delay deliveries under the contract, notify the Contracting Officer in writing thereof. Such notification shall identify difficulties, the reasons therefore, and the estimated period of anticipated delay.

FAILURE OF THE CONTRACTOR TO GIVE SUCH NOTICE MAY PRECLUDE LATER CONSIDERATION OF ANY CLAIM FOR NON-PERFORMANCE DUE TO WEATHER CONDITIONS OR ANY REQUEST FOR AN EXTENSION OF CONTRACT TIME.

H-5 WAGE DETERMINATION

The Wage Determination applicable to any contract resulting from this solicitation is determined by the location of the Contractor's establishment.

Wage Determination number 1995-0222, Revision 27, dated February 6, 2009 will be applicable for Contractors located nationwide. See Section J, Exhibit 4.

H-6 INDUSTRY SMALL BUSINESS STANDARD

The small business industry size standard for the type of services covered by this procurement, under NAICS code 541922, is the average annual receipts of the concern and its affiliates for the preceding three (3) years not in excess of \$7.0 million.

PART II - CONTRACT CLAUSES

SECTION I – CONTRACT CLAUSES

I-1 STATEMENT OF EQUIVALENT RATES FOR FEDERAL HIRES (MAY 1989) (FAR 52.222-42)

In compliance with the Service Contract Act of 1965, as amended, and the regulations of the Secretary of Labor (29 CFR part 4), this clause identifies the classes of service employees expected to be employed under the contract and states the wages and fringe benefits payable to each if they were employed by the contracting agency subject to the provisions of 5 U.S.C. 5341 or 5332.

THIS STATEMENT IS FOR INFORMATION ONLY.
IT IS NOT A WAGE DETERMINATION.

| <u>Employee Class</u> | <u>Monetary Wages – Fringe Benefits</u> |
|-----------------------|---|
| Aircraft Pilot | \$24.36/hr |
| Aerial Photographer | \$22.18/hr |
| Photo Lab Technician | \$12.17/hr |

I-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)(FAR 52.252-2)

This contract incorporates the following clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) CLAUSES:

- 52.202-01 Definitions (JUL 2004)
- 52.203-03 Gratuities (APR 1984)
- 52.203-05 Covenant Against Contingent Fees (APR 1984)
- 52.203-06 Restrictions on Subcontractor Sales to the Government (SEP 2006)
- 52.203-07 Anti-Kickback Procedures (JUL 1995)
- 52.203-08 Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity (JAN 1997)
- 52.203-10 Price or Fee Adjustment for Illegal or Improper Activity (JAN 1997)
- 52.203-12 Limitation on Payments to Influence Certain Federal Transactions (SEP 2007)

- 52.204-04 Printing/Copying Double-Sided on Recycled Paper (AUG 2000)
- 52.204-07 Central Contractor Registration (APR 2008)
- 52.209-06 Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment (SEP 2006)
- 52.211-5 Material Requirements (AUG 2000)
- 52.215-02 Audit and Records - Negotiation (JUN 1999)
- 52.215-08 Order of Precedence - Uniform Contract Format (OCT 1997)
- 52.215-14 Integrity of Unit Prices (OCT 1997)
- 52.217-08 Option to Extend Services (NOV 1999)
- 52.217-09 Option to Extend the Term of the Contract (MAR 2000)
- 52.219-08 Utilization of Small Business Concerns (MAY 2004)
- 52.222-03 Convict Labor (JUN 2003)
- 52.222-04 Contract Work Hours and Safety Standards Act - Overtime Compensation (JUL 2005)
- 52.222-21 Prohibition of Segregated Facilities (FEB 1999)
- 52.222-26 Equal Opportunity (MAR 2007)
- 52.222-35 Equal Opportunity for Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans (SEP 2006)
- 52.222-36 Affirmative Action for Workers with Disabilities (JUN 1998)
- 52.222-37 Employment Reports on Special Disabled Veterans and Veterans of the Vietnam Era, and Other Eligible Veterans (SEP 2006)
- 52.222-41 Service Contract Act of 1965, as Amended (NOV 2007)
- 52.222-44 Fair Labor Standards Act and Service Contract Act - Price Adjustment (FEB 2002)
- 52.223-06 Drug-Free Workplace (MAY 2001)
- 52.223-14 Toxic Chemical Release Reporting (AUG 2003)

- 52.225-13 Restrictions on Certain Foreign Purchases (JUN 2008)
- 52.227-01 Authorization and Consent (DEC 2007)
- 52.227-03 Patent Indemnity (APR 1984)
- 52.227-14 Rights in Data - General - Alternate I (DEC 2007)
- 52.229-03 Federal, State, and Local Taxes (APR 2003)
- 52.232-01 Payments (APR 1984)
- 52.232-08 Discounts for Prompt Payment (FEB 2002)
- 52.232-09 Limitation on Withholding of Payments (APR 1984)
- 52.232-11 Extras (APR 1984)
- 52.232-17 Interest (OCT 2008)
- 52.232-23 Assignment of Claims (JAN 1986)
- 52.232-25 Prompt Payment (OCT 2008)
- 52.233-01 Disputes (JUL 2002)
- 52.233-03 Protest After Award (AUG 1996)
- 52.233-04 Applicable Law for Breach of Contract Claim (OCT 2004)
- 52.242-02 Production Progress Reports (APR 1991)
- 52.242-13 Bankruptcy (JUL 1995)
- 52.243-01 Changes - Fixed Price - Alternate II (AUG 1987)
- 52.246-25 Limitation of Liability - Services (FEB 1997)
- 52.248-01 Value Engineering (FEB 2000)
- 52.249-04 Termination for Convenience of the Government (Services) (Short Form) (APR 1984)
- 52.249-08 Default (Fixed-Price Supply and Service) (APR 1984)
- 52.253-01 Computer Generated Forms (JAN 1991)

PART III – LIST OF DOCUMENTS, EXHIBITS, AND OTHER
ATTACHMENTS

SECTION J – LIST OF ATTACHMENTS

| <u>Exhibit</u> | <u>Description</u> | <u>Page</u> |
|----------------|--|-------------|
| Exhibit 1 | Project Maps (2 page) | 46-47 |
| Exhibit 2 | Labeling Requirements (3 page) | 48-50 |
| Exhibit 3 | Progress Report (2 pages) | 51-52 |
| Exhibit 4 | Wage Determination: Nationwide: Number 1995-0222, Revision 27, Dated February 6, 2009 (3 pages) | 53-55 |
| Exhibit 5 | Glossary and Definitions (1 page) | 56 |
| Appendix A | USDA Aerial Camera Specifications (9 pages) | |

EXHIBIT 1
PROJECT MAP, ITEM 1

Figure 1

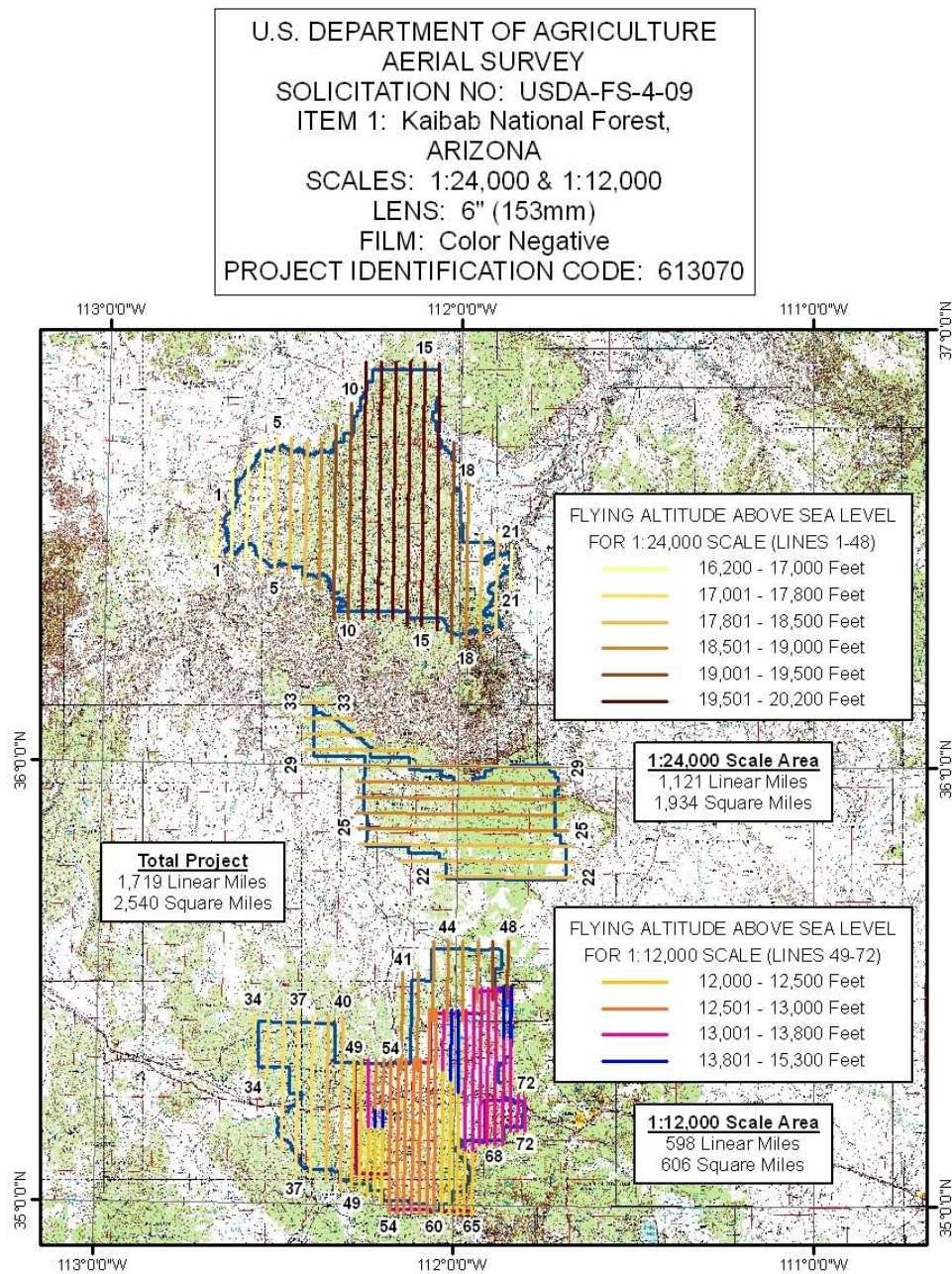


EXHIBIT 1
PROJECT MAP, ITEM 2

Figure 2

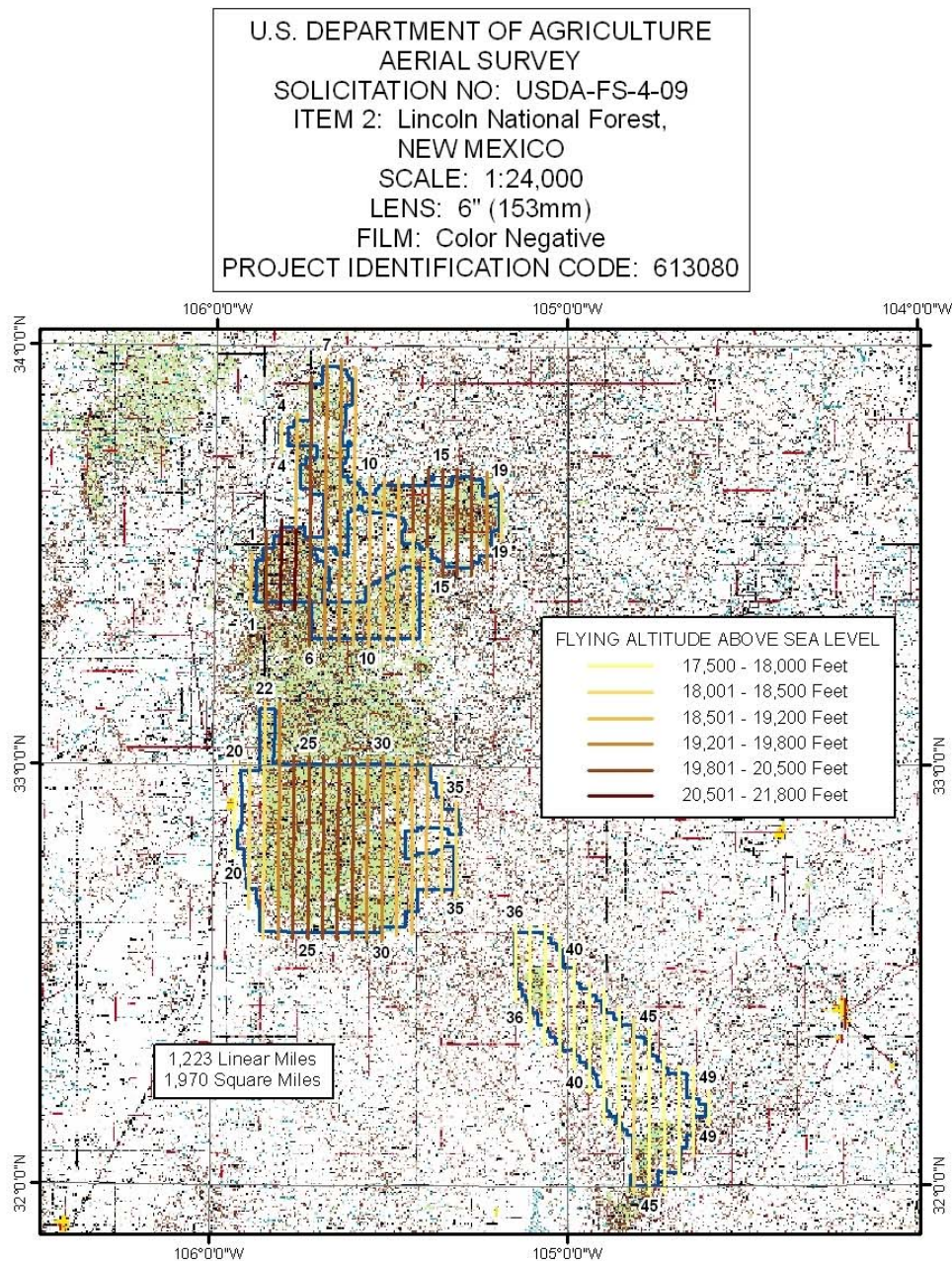


EXHIBIT 2

Figure 1

FILM CAN LABEL

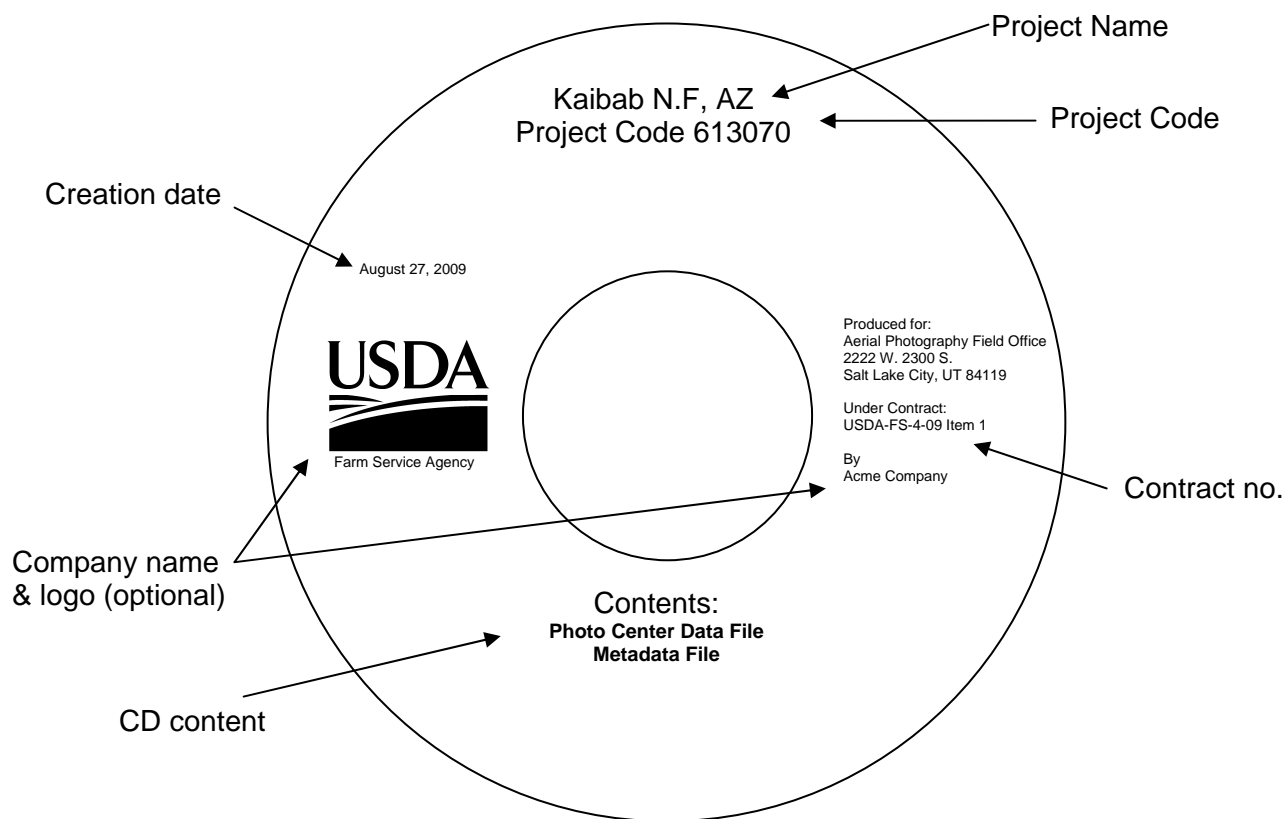
| FILM CAN LABEL | | | |
|--|-----------------|-----------------|------------------|
| SOLICITATION NO. AND PROJECT ITEM NO. | | | ROLL NO. |
| USDA-FS-4-09, Item 1 | | | 108 |
| STATE | NOMINAL SCALE | FILM TYPE | |
| ARIZONA | 1:12,000 | CN | |
| LENS NO. | | CAMERA NO. | CAMERA MAKE |
| ### | | ##### | Zeiss |
| CALIBRATED FOCAL LENGTH | | USGS REPORT NO. | USGS REPORT DATE |
| 153.000 | | OSL/### | 30-MAY-07 |
| PROJECT NAME | CODE | EXPOSURE NOS. | DATE EXPOSED |
| Kaibab, NF | 613070 | | |
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| CONTRACTOR: | | | |
| USDA-FSA-AERIAL PHOTOGRAPHY FIELD OFFICE | | APFO-55 (2000) | |

INSTRUCTIONS: PLEASE COMPLETE ALL BOXES THAT ARE APPLICABLE.

EXHIBIT 2

Figure 2

CD-ROM LABELING REQUIREMENTS

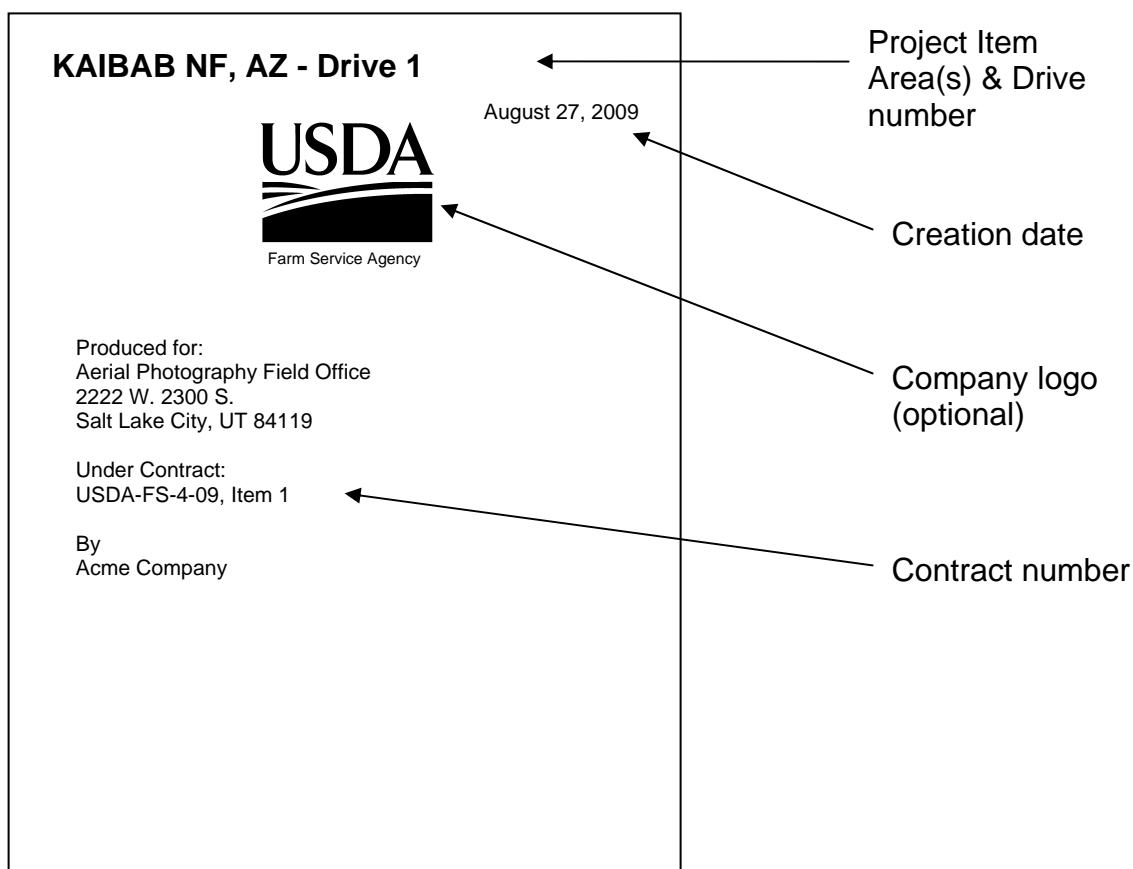


| ELEMENT | EXAMPLE |
|---------------------|---|
| CD content | Photo Center Data File, and Metadata File |
| Company name & logo | Acme Company |
| Contract number | USDA-FS-4-09, Item 1 |
| Creation date | August 27, 2009 |
| Project Name & code | Kaibab NF, AZ Project Code 613070 |

EXHIBIT 2

Figure 3

EXTERNAL HARD DRIVE LABELING REQUIREMENTS (applicable only if Option 2 is exercised)



| ELEMENT | EXAMPLE |
|----------------------------------|----------------------------|
| Company name & logo | Acme Company |
| Contract number | USDA-FS-4-09-1 |
| Creation date | August 27, 2009 |
| Project item area & drive number | Kaibab NF, AZ–Hard Drive 1 |

Approximate label dimensions: 3-1/2” (width) x 4-1/2” (height)

EXHIBIT 3

PROGRESS REPORT FORMAT

Syntax:

HEADER ITEMS: field-name “:”[field-body][CRFL]

BODY ITEMS: body item [CRFL]

Header Items:

All four header items are required to be submitted in each and every submittal.

| <u>DESCRIPTION</u> | <u>KEYWORD</u> | <u>FORMAT</u> |
|-----------------------|----------------|-----------------|
| Contractor Name | CONTRACTOR | Alphanumeric |
| Contract Award Number | CONTRACT | Numeric (N-YY) |
| Award Item | ITEM | Numeric (N) |
| Date Flown | DATE | Date (YYYYMMDD) |

Body Items:

All data elements are required for each line of data submitted. Data elements are to be separated by 5 ASCII decimal 32 (white space). Acquisition and rejected exposure stations can be submitted as separate reports or as a combined report.

| <u>DESCRIPTION</u> | <u>KEYWORD</u> | <u>FORMAT</u> |
|--------------------|----------------|---------------|
| Latitude | N/A | DD.DDDDD |
| Longitude | N/A | -DDD.DDDDD |
| Status | N/A | Char(1)* |

* Status Field:

A - Indicates the Exposure Station has been collected

R – Indicates the contractor has rejected a previously acquired Exposure Station

When an exposure station is rejected the exposure station will appear in a later report marked with an “R”. Each report submitted should include only one status indicator for a particular exposure station.

PROGRESS REPORT CONVENTION (CON'T)

Sample:

CONTRACTOR: Acme Photography
CONTRACT: 4-09
ITEM: 1
DATE: 08/31/2009

42.99972,-106.33611,A
42.99972,-106.34167,A
42.99972,-106.34722,A

Notes:

- 1) Text is case insensitive.
- 2) Header fields are not required to occur in any particular order.
- 3) Body items must occur after the headers.
- 4) Each header item must be on a single line (no “folding”).
- 5) Keywords may not contain spaces and must be followed immediately by a colon.
- 6) The header items and body items may be separated by a NULL line (a blank line with a carriage-return/line-feed (CRFL)(ASCII 13 and 10).
- 7) Body items can only contain one x,y data pair per line and must be terminated by a carriage-return/line-feed.
- 8) Contract number must be transmitted without the prefix (i.e., USDA-FS-4-09 should be sent as 4-09).
- 9) Date must be transmitted as MM/DD/YYYY.
- 10) Latitude and longitude must be expressed in decimal degrees and separated by a comma.
- 11) No e-mail attachments.

EXHIBIT 4 WAGE DETERMINATION

Wage Determination: 1995-0222, 27

Page 1 of 3

REGISTER OF WAGE DETERMINATIONS UNDER THE
SERVICE CONTRACT ACT
By direction of the Secretary of Labor

Shirley F. Ebbesen Director Division of Wage
Determinations

U.S. DEPARTMENT OF LABOR
EMPLOYMENT STANDARDS ADMINISTRATION
WAGE AND HOUR DIVISION
WASHINGTON, D.C. 20210

Wage Determination No.: 1995-0222
Revision No.: 27
Date of Last Revision: 02/06/2009

Nationwide: Applicable in the continental U.S. Alaska, Puerto Rico, Hawaii and Virgin Islands.

****Fringe Benefits Required Follow the Occupational Listing****

Employed on U.S. Government contracts for aerial photographer, aerial seeding, aerial spraying, transportation of personnel and cargo, fire reconnaissance, administrative flying, fire detection, air taxi mail service, and other flying services.

OCCUPATION CODE - TITLE

MINIMUM WAGE RATE

| | |
|--------------------------------------|--------|
| 31010 - Airplane Pilot | 24 .36 |
| (not set) - First Officer (Co-Pilot) | 22 .18 |
| (not set) - Aerial Photographer | 12 .17 |

EXCEPT SCHEDULED AIRLINE TRANSPORTATION AND LARGE MULTI-ENGINE AIRCRAFT SUCH AS THE B-727, DC-8, AND THE DC-9.

ALL OCCUPATIONS LISTED ABOVE RECEIVE THE FOLLOWING BENEFITS:

HEALTH & WELFARE: \$3.24 per hour or \$129.60 per week or \$561.60 per month

VACATION: 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 5 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HOLIDAYS: A minimum of ten paid holidays per year, New Year's Day, Martin Luther King Jr's Birthday, Washington's Birthday, Memorial Day, Independence Day, Labor Day, Columbus Day, Veterans' Day, Thanksgiving Day, and Christmas Day. (A contractor may substitute for any of the named holidays another day off with pay in accordance with a plan communicated to the employees involved.) (See 29 CFR 4174)

VACATION (Hawaii): 2 weeks paid vacation after 1 year of service with a contractor or successor; 3 weeks after 10 years, and 4 weeks after 15 years. Length of service includes the whole span of continuous service with the present contractor or successor, wherever employed, and with the predecessor contractors in the performance of similar work at the same Federal facility. (Reg. 29 CFR 4.173)

HEALTH & WELFARE (Hawaii): \$1.37 per hour, or \$54.80 per week, or \$237.47 per month hour for all employees on whose behalf the contractor provides health care pursuant to the Hawaii prepaid Health Care Act. For those employees who are not receiving health care benefits mandated by the Hawaii prepaid Health Care Act, the new health and welfare benefit rate will be \$3.24 per hour.

HAZARDOUS PAY DIFFERENTIAL: An 8 percent differential is applicable to employees employed in a position that represents a high degree of hazard when working with or in close proximity to ordinance, explosives, and incendiary materials. This includes work such as screening, blending, dying, mixing, and pressing of sensitive ordnance, explosives, and pyrotechnic compositions such as lead azide, black powder and photoflash powder. All dry-house activities involving propellants or explosives. Demilitarization, modification, renovation, demolition, and maintenance operations on sensitive ordnance, explosives and incendiary materials. All operations involving regrading and cleaning of artillery ranges.

A 4 percent differential is applicable to employees employed in a position that represents a low degree of hazard when working with, or in close

<https://cs1xwep1.dol-esa.gov/SF98/getwd.jsp?wdid=40198>

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EXHIBIT 4

WAGE DETERMINATION

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proximity to ordnance, (or employees possibly adjacent to) explosives and incendiary materials which involves potential injury such as laceration of hands, face, or arms of the employee engaged in the operation, irritation of the skin, minor burns and the like; minimal damage to immediate or adjacent work area or equipment being used. All operations involving, unloading, storage, and hauling of ordnance, explosive, and incendiary ordnance material other than small arms ammunition. These differentials are only applicable to work that has been specifically designated by the agency for ordnance, explosives, and incendiary material differential pay.

** UNIFORM ALLOWANCE **

If employees are required to wear uniforms in the performance of this contract (either by the terms of the Government contract, by the employer, by the state or local law, etc.), the cost of furnishing such uniforms and maintaining (by laundering or dry cleaning) such uniforms is an expense that may not be borne by an employee where such cost reduces the hourly rate below that required by the wage determination. The Department of Labor will accept payment in accordance with the following standards as compliance:

The contractor or subcontractor is required to furnish all employees with an adequate number of uniforms without cost or to reimburse employees for the actual cost of the uniforms. In addition, where uniform cleaning and maintenance is made the responsibility of the employee, all contractors and subcontractors subject to this wage determination shall (in the absence of a bona fide collective bargaining agreement providing for a different amount, or the furnishing of contrary affirmative proof as to the actual cost), reimburse all employees for such cleaning and maintenance at a rate of \$3.35 per week (or \$.67 cents per day). However, in those instances where the uniforms furnished are made of "wash and wear" materials, may be routinely washed and dried with other personal garments, and do not require any special treatment such as dry cleaning, daily washing, or commercial laundering in order to meet the cleanliness or appearance standards set by the terms of the Government contract, by the contractor, by law, or by the nature of the work, there is no requirement that employees be reimbursed for uniform maintenance costs.

The duties of employees under job titles listed are those described in the "Service Contract Act Directory of Occupations", Fifth Edition, April 2006, unless otherwise indicated. Copies of the Directory are available on the Internet. A link to the Directory may be found on the WHD home page at <http://www.dol.gov/esa/whd/> or through the Wage Determinations On-Line (WDOL) Web site at <http://wdol.gov/>.

REQUEST FOR AUTHORIZATION OF ADDITIONAL CLASSIFICATION AND WAGE RATE {Standard Form 1444 (SF 1444)}

Conformance Process:

The contracting officer shall require that any class of service employee which is not listed herein and which is to be employed under the contract (i.e., the work to be performed is not performed by any classification listed in the wage determination), be classified by the contractor so as to provide a reasonable relationship (i.e., appropriate level of skill comparison) between such unlisted classifications and the classifications listed in the wage determination. Such conformed classes of employees shall be paid the monetary wages and furnished the fringe benefits as are determined. Such conforming process shall be initiated by the contractor prior to the performance of contract work by such unlisted class(es) of employees. The conformed classification, wage rate, and/or fringe benefits shall be retroactive to the commencement date of the contract. {See Section 4.6 (C)(vi)} When multiple wage determinations are included in a contract, a separate SF 1444 should be prepared for each wage determination to which a class(es) is to be conformed.

The process for preparing a conformance request is as follows:

- 1) When preparing the bid, the contractor identifies the need for a conformed occupation(s) and computes a proposed rate(s).
- 2) After contract award, the contractor prepares a written report listing in order proposed classification title(s), a Federal grade equivalency (FGE) for each proposed classification(s), job description(s), and rationale for proposed wage rate(s), including information regarding the agreement or disagreement of the authorized representative of the employees involved, or where there is no authorized representative, the employees themselves. This report should be submitted to the contracting officer no later than 30 days after such unlisted class(es) of employees performs any contract work.
- 3) The contracting officer reviews the proposed action and promptly submits a report of the action, together with the agency's recommendations and pertinent information including the position of the contractor and the employees, to the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, for review. (See section 4.6(b)(2) of Regulations 29 CFR Part 4).
- 4) Within 30 days of receipt, the Wage and Hour Division approves, modifies, or disapproves the action via transmittal to the agency contracting officer, or notifies the contracting officer that additional time will be required to process the request.
- 5) The contracting officer transmits the Wage and Hour decision to the contractor.
- 6) The contractor informs the affected employees.

Information required by the Regulations must be submitted on SF 1444 or bond paper.

<https://cslxwep1.dol-esa.gov/SF98/getwd.jsp?wdid=40198>

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EXHIBIT 4

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When preparing a conformance request, the "Service Contract Act Directory of Occupations" (the Directory) should be used to compare job definitions to insure that duties requested are not performed by a classification already listed in the wage determination. Remember, it is not the job title, but the required tasks that determine whether a class is included in an established wage determination. Conformances may not be used to artificially split, combine, or subdivide classifications listed in the wage determination.

**** OCCUPATIONS NOT INCLUDED IN THE SCA DIRECTORY OF OCCUPATIONS ****

Aerial Photographer

The aerial photographer must be skilled in reading flight maps, capable of assisting the pilot to adhere to flight lines, be able to level and operate a cartographic camera and its auxiliary equipment mounted in the aircraft so that the photographs that are taken will have the required forward lap and side lap for use in photogrammetric mapping equipment, and possess a working knowledge of aerial films and camera filters to insure proper exposure of the films.

First Officer (Co-Pilot)

Is second in command of commercial airplane and its crew while transporting passengers, mail, or other cargo on scheduled or nonscheduled flights. Assists or relieves an airline captain in operating the controls of an airplane; monitoring flight and engine instruments; and maintaining air-to-ground communications.

EXHIBIT 5

GLOSSARY AND DEFINITIONS

Camera System: The combination of lens, cone, magazine(s), and camera filter(s) which have been calibrated as an integral unit.

Contracting Officer's Technical Representative (COTR): A person assigned to a contract who has the responsibility of providing technical information such as site ground and weather conditions.

Contracting Officer's Representative (COR): A person assigned to a contract who is responsible for specific technical and administrative duties related to that contract.

Exposure Stations: Pre-determined locations, annotated by USDA on the flight map, where photo centers of individual frames are to be exposed.

Film Titling: Information annotated on the original aerial film pertaining to project and exposure identification.

Line Item: A separable area or unit within a project item that has separate linear miles. All line items within a project item shall be awarded to only one offeror.

Original Photography: All aerial photography, as secured by the Contractor, prior to its inspection by the USDA, including any reflights made at the discretion of the Contractor.

Project Item: An area or areas described in the Schedule for which award shall be made to one offeror.

Refight Photography: Photography reflown to replace original photography rejected by USDA.

Remake Materials: Any contract materials, other than the original aerial film, ordered remade by USDA.

Stereomodel: The area covered by the conjugate images of three successive overlapping exposures.

APFO: Aerial Photography Field Office.

FSA: Farm Service Agency (formerly ASCS, CFSA).

FS: Forest Service.

NRCS: Natural Resource Conservation Service (formerly SCS).

USDA: United States Department of Agriculture.

USGS: United States Geological Survey.

PART IV – REPRESENTATIONS AND INSTRUCTIONS

SECTION K –

REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS

K-1 ANNUAL REPRESENTATIONS AND CERTIFICATIONS (FEB 2009)(FAR 52.204-8)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is **541922**.

(2) The small business size standard is **\$7.0 million**.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b)(1) If the clause at 52.204-7, Central Contractor Registration, is included in this solicitation, paragraph (c) of this provision applies.

(2) If the clause at 52.204-7 is not included in this solicitation, and the offeror is currently registered in CCR, and has completed the ORCA electronically, the offeror may choose to use paragraph (c) of this provision instead of completing the corresponding individual representations and certifications in the solicitation. The offeror shall indicate which option applies by checking one of the following boxes:

☐ (i) Paragraph (c) applies.

☐ (ii) Paragraph (c) does not apply and the offeror has completed the individual representations and certifications in the solicitation.

(c) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website at <http://orca.bpn.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically have been entered or updated within the last 12 months, are current, accurate, complete, and applicable to this solicitation (including the business size standard applicable to the NAICS code referenced for this solicitation), as of the date of this offer and are incorporated in this offer by reference (see FAR 4.1201); except for the changes identified below [*offeror to insert changes, identifying change by clause number, title, date*]. These amended representation(s) and/or certification(s) are also incorporated in this offer and are current, accurate, and complete as of the date of this offer.

| FAR CLAUSE # | TITLE | DATE | CHANGE |
|--------------|-------|-------|--------|
| _____ | _____ | _____ | _____ |

Any changes provided by the offeror are applicable to this solicitation only, and do not result in an update to the representations and certifications posted on ORCA.

(End of Provision)

K-2 INCOMPLETE CONTRACTS AS OF DATE OF PROPOSAL:

| <i>Indicate by Linear Miles</i> | Remaining Work - Summer | Remaining Work - Winter |
|---------------------------------|-------------------------|-------------------------|
| U.S. Government Contracts | | |
| All Other Contracts | | |

K-3 AIRCRAFT TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT:

| Make/Model | Registration # | Operating Ceiling | Bidder Owned (check appropriate block) |
|------------|----------------|-------------------|---|
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |

* If the aircraft is/are not offeror owned, a written statement of availability from the owner of the aircraft must be enclosed. See Section C-2.

K-4 CAMERA(S) TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT:

Current calibration report(s) must be enclosed or on file at the Aerial Photography Field Office. –

| Make/Model | Lens Number | Magazine Number | Bidder Owned (check appropriate block) |
|------------|-------------|-----------------|---|
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |
| | | | <input type="checkbox"/> Yes <input type="checkbox"/> No * |

* If the camera(s) is/are not offeror owned, a written statement of availability from the owner(s) of the camera(s) must be enclosed. See Section C-2.

K-5 ADDRESS TO WHICH PAYMENT SHOULD BE MAILED

In the space provided below, the Contractor is requested to indicate the address to which payment should be mailed, or indicate "same" if it is the same as the address shown on the solicitation form (page 1).

K-6 PAST PERFORMANCE REFERENCES

If no previous contracts have been held by the offeror with the Aerial Photography Field Office, list two (2) references with whom the offeror has held similar contracts. If possible, one reference should be within the Federal Government.

(List company or agency name, address, name of person to contact, and telephone number)

(1) _____ (2) _____

K-7 KEY PERSONNEL INTENDED FOR PERFORMANCE ON THIS CONTRACT:

List all key professional and technical personnel intended to perform on this contract. List may include project manager, pilot(s), photographer(s), and key back-up or support personnel.

| Name | Title | Education | Years of Experience |
|------|-------|-----------|---------------------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

K-8 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)
(FAR 52.252-1)

This contract incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) PROVISIONS:

- 52.203-11 Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions (SEP 2007)
- 52.204-05 Women-Owned Business (Other Than Small Business) (MAY 1999)
- 52.222-38 Compliance with Veterans' Employment Reporting Requirements (DEC 2001)

PART IV – REPRESENTATIONS AND INSTRUCTIONS

SECTION L – INSTRUCTIONS, CONDITIONS, AND NOTICES TO OFFERORS

L-1 TYPE OF CONTRACT (APR 1984)(FAR 52.216-01)

The Government contemplates award of a Firm-Fixed-Price contract resulting from this solicitation.

L-2 INSTRUCTIONS FOR PREPARATION OF TECHNICAL AND PRICING PROPOSALS

The following instructions establish the acceptable minimum requirements for the format and content of proposals. Offerors are advised to furnish all information in the sequence and format specified below. Failure to furnish all information requested may adversely affect the evaluation of the proposal. Proposals will be evaluated in accordance with the evaluation factors set forth in Section M of this solicitation.

2.1 General Instructions

Proposals must be prepared in two parts: Part I: Pricing Proposal, and Part II: Technical Proposal. Each of the parts shall be separate and complete in itself so that evaluation of one may be accomplished independently from evaluation of the other. The technical proposal must not contain any reference to cost or price.

Proposal should be precise, factual and responsive and must include, but is not limited to, the information listed below. Proposal content shall be organized in two separate parts and be submitted in the order indicated as follows:

2.2 PART I Pricing Proposal

Pricing information and related data shall be submitted as Part I of the offeror's proposal. Each proposal must contain a signed and dated Standard Form 33 (page 1 of the solicitation) with items 12 through 18 completed. Section B should be submitted in its entirety with both unit price per linear mile and the total price for the item(s) indicated in the appropriate locations.

2.3 PART II Technical Proposal

Response to the following technical statements will form the basis of a proposal's technical merit. Offerors are cautioned to address all requested information as complete and accurate as possible. Data contained in Section K of the solicitation document shall be referenced in support of statements.

(a) Project Management Capability

- (1) Statement of technical approach to project management that would assure completion of all work by or before the scheduled delivery date. Statement should include detailed description of planned approach, procedures, management techniques, and specialized equipment to be used in performance of the work;
- (2) Scheduling and site basing of crew and aircraft based on knowledge of the weather patterns during the flying season of the project area.

(b) Past Performance History

- (1) Past performance will be evaluated based on relevant performance history contained in USDA contract records of projects awarded by the Aerial Photography Field Office. Offerors' past performance will be evaluated according to the following criteria and may include other relevant factors:
 - (i) Contract performance record;
 - (ii) Project completion record;
 - (iii) Delivery schedule compliance record.
- (2) If no previous contracts have been held by the offeror with the Aerial Photography Field Office, list two (2) references with who the offeror has held similar contracts. List past performance references in the space provided in Section K of the solicitation document.
- (3) If an offeror does not have, or have available, a past performance history, the offeror's proposal will not be evaluated favorably or unfavorably on past performance.

(c) Quality Control System

Detailed statement on contractor quality control system that will insure all contract materials submitted for inspection are in compliance with contract specifications. See Section C, Paragraph 1.1(c) for quality control requirements.

(d) Personnel Qualifications

List all professional and technical personnel intended to perform on this contract in the appropriate locations in Section K of the solicitation document.

Recommended list includes Project Manager, Aircraft Pilot(s), Aerial Photographer(s), and key back-up or support personnel. Brief resumes may be provided on separate papers for the personnel, stating name, title, education, past experience, and years of experience.

- (e) Aircraft and Camera Availability: List all aircraft and cameras intended to be used in completion of this contract in the appropriate locations in Section K of the solicitation document. If availability of equipment is contingent on other contractual commitments running concurrently with the work contemplated by this solicitation, indicate such in proposal statement.
- (f) Incomplete Contracts: List all incomplete contracts which require performance during the approximate photographic period indicated in Section B and affect equipment and personnel listed herein. List shall include project name, client, remaining linear miles. Total remaining linear miles shall be summarized in the appropriate location in Section K of the solicitation document.

2.4 Solicitation Document and Supporting Data

The offeror's proposal must include the following required information and supporting data specified in the solicitation document:

Section K:

- (a) Annual Representations and Certifications (CCR and ORCA),
- (b) Incomplete Contracts as of Date of Proposal,
- (c) Aircraft to be Used in Completion of the Contract
- (d) Cameras to be Used in Completion of the Contract,
- (e) Past Performance References (if required),
- (f) Key Personnel to Perform on the Contract.

Section L:

- (a) Camera Calibration Report(s),
- (b) Current Financial Statement.

The solicitation document may be submitted in its entirety, complete with Sections C through M, or at a minimum with Sections K and L.

L-3 CAMERA CALIBRATION REPORT

Each offeror shall have on file with the Aerial Photography Field Office, or shall submit with the offer, one copy of a Report of Calibration from the U.S. Geological Survey for each camera to be used. A camera calibration report will not be acceptable if more than three years old at the time of the scheduled date for receipt of offers. Please indicate which statement is correct:

- ☐ Calibration report on file at APFO.
- ☐ Calibration report submitted with offer.

L-4 CURRENT FINANCIAL STATEMENT

Offerors may be required to provide a “current” financial statement. For purposes of this solicitation, a current financial statement would be the most recent annual report, updated, if necessary, so that information reflects the company’s financial status within 6 months.

All data shall be certified by an authorized company officer as to its accuracy and veracity or validated by an independent certified public account. If necessary, the Contracting Officer may request additional financial information.

Financial information received will be treated as confidential and will not be used for purposes other than evaluation of financial responsibility. Failure to provide this information may delay or prohibit the Contracting Officer from making an affirmative decision on the offerors responsibility. Please indicate which statement is correct:

☐ Current financial statement on file at APFO.

☐ Current financial statement submitted with offer.

L-5 CONTRACT DIFFICULTIES AND CONTINGENCIES

Offerors are cautioned to examine the solicitation, visit the work location if necessary, and evaluate the facilities needed and difficulties attending the execution of the proposed contract. Considerations include local conditions, uncertainty of weather, availability of landing fields, restricted airspace, and all other contingencies.

L-6 SERVICE OF PROTEST

Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO) shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from: Director, Acquisition Management, USDA/FSA/MSD/AG Code 0567, P.O. Box 2415, Washington, DC 20013-2415.

The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

L-7 INQUIRIES (FEB 1988)(AGAR 452.204-70)

Inquiries and all correspondence concerning this solicitation should be submitted in writing to the Contracting Officer. Offerors should contact only the Contracting Officer issuing the solicitation about any aspect of this requirement prior to contract award.

L-8 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)(FAR 52.252-1)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this address: www.arnet.gov/far.

FEDERAL ACQUISITION REGULATION (48 CFR CHAPTER 1) PROVISIONS:

- 52.204-06 Data Universal Numbering System (DUNS) Number (APR 2008)
- 52.215-01 Instructions to Offerors – Competitive Acquisition (JAN 2004)

PART IV – REPRESENTATIONS AND INSTRUCTIONS

SECTION M – EVALUATION FACTORS FOR AWARD

M-1 PROPOSAL EVALUATION

Proposal evaluation is an assessment of the proposal and the offeror's ability to perform the prospective contract successfully. The Government shall establish an evaluation team that includes appropriate contracting, technical, and other expertise to ensure a comprehensive evaluation of proposals.

1.1 Technical Evaluation Team

The Technical Evaluation Team will evaluate, and rank according to technical merit, all proposals in accordance with the evaluation factors established in this solicitation. The team will not have access to the pricing proposal during the technical evaluation process. The offeror's proposal shall be in the format prescribed in Section L and shall contain a response to each of the areas identified.

1.2 Competitive Range

The Contracting Officer shall establish the competitive range based on ratings of each proposal against all evaluation criteria including price. The competitive range shall be comprised of all of the most highly rated proposals. The competitive range can be limited for purposes of efficiency (see FAR 52.215-1(f)(4)). If negotiations are conducted in the source selection process they shall occur after establishment of the competitive range.

1.3 Source Selection Decision

The Contracting Officer shall select for purposes of award the overall superior proposal which offers the "best" value to the Government, price and other factors considered. The decision shall be based on a comparative assessment of proposals against all source selection criteria in the solicitation.

1.4 EVALUATION EXCLUSIVE OF OPTIONS (APR 1984)(FAR 52.217-3)

The Government will evaluate offers for award purpose by including only the price for the basic requirement; i.e. options will not be included in the evaluation for award purposes.

M-2 EVALUATION FACTORS

Proposals shall be evaluated according to the following criteria including all supporting information furnished by the offeror with the proposal. The evaluation criteria are listed in descending order of importance with relative point values indicated. See Section L for instructions for preparation of technical and pricing proposals.

2.1 Technical Evaluation

| <u>Evaluation Criteria</u> | <u>Relative Point Value</u> |
|--------------------------------------|-----------------------------|
| (a) Project Management Capability | 25 |
| (b) Past Performance History | 25 |
| (c) Quality Control System | 20 |
| (d) Personnel Qualifications | 10 |
| (e) Aircraft and Camera Availability | 10 |
| (f) Incomplete Contracts | <u>10</u> |
| | 100 |

2.2 Price Evaluation

While technical excellence is considered more significant than price, the proposed price between technically superior proposals shall be an important factor in selection of a proposal for award. The Government reserves the right to make an award to other than the lowest priced offeror, or other than the highest technically rated offeror, when the perceived benefits and tradeoffs provide the Government the greatest value.

Offerors are cautioned to insert the price per linear mile and the total price for the Project Item(s) in the appropriate locations in Section B. In case of discrepancy between a unit price (price per linear mile) and an extended price (total price), the unit price will be presumed to be correct, subject, however, to correction to the same extent and in the same manner as any other mistake.

2.3 Other Factors

The Contracting Officer will consider, in addition to the evaluation criteria, the prospective Contractor's responsibility record in terms of financial resources, business integrity and ethics and other standards, as defined in the Federal Acquisition Regulation, Part 9.

M-3 CONTRACT AWARD

The Government intends to evaluate proposals and award a contract or contracts resulting from this solicitation after conducting discussions with offerors whose proposals have been determined to be within the competitive range.

3.1 Contract Award

The contract will be awarded to that responsive and responsible offeror whose proposal represents the greatest value and is determined to be in the best interest and the most advantageous to the Government, price and other factors considered.

3.2 Possibility of Award Without Discussion

Notice is given to all offerors that there is a possibility that award may be made without discussion or further negotiation. Proposals should be submitted initially on the most favorable terms, from a price and technical standpoint, which the offeror can submit to the Government.

3.3 Required or Requested Information

Award will be made only in conjunction with proposals from responsible prospective Contractors. Failure to provide the information, material, and/or documentation either required in Sections K and L, or requested by the Contracting Officer, within eight (8) calendar days of the request, may result in the proposal being rejected.

ATTACHMENT A

USDA AERIAL CAMERA SPECIFICATIONS

1. PRECISION AERIAL MAPPING CAMERA

Tested and calibrated aerial cameras for taking aerial photographs are required. Camera systems must be compatible with precision stereoscopic mapping instruments and with analytical mensuration procedures used in photogrammetric surveys and in preparing accurate topographic maps.

1.1 Camera System "Report of Calibration"

One copy of the "Report of Calibration" from the U.S. Geological Survey, for any camera system to be used, is required to be either on file at the USDA, or submitted with the contractor's offer. A camera system "Report of Calibration" will not be acceptable if more than three (3) years old at the scheduled date for receipt of offers.

1.2 Calibration Tests

Tests to determine compliance with these specifications will be performed by the Optical Science Laboratory of the U.S. Geological Survey. The fee for the tests and the arrangements to have the tests performed are the responsibility of the contractor. Delays encountered in having camera systems tested by the USGS Optical Science Laboratory will not be considered reason for the USDA to accept offers lacking such reports. Each camera system submitted for calibration shall be accompanied by all magazines and filters that might be used with the camera. Controls and camera mounts should not be submitted unless requested by the calibrating laboratory. Instructions for operation of the camera, including directions for holding the shutter open for laboratory tests, shall accompany each camera unless ascertained to be on file with the calibrating laboratory.

1.21 Interval Between Tests

The interval between tests for camera system calibrations shall not exceed three (3) years, unless otherwise approved by the Contracting Officer. However, when there is any reason to believe that the dimensional relationship of the lens, fiducial marks, and film plane have been disturbed by partial disassembly or unusual mechanical shock, the camera must be submitted for recalibration at contractor expense.

1.22 Contact for Calibration Tests

U.S. Geological Survey
National Mapping Division
560 National Center
Reston, Virginia 20192
Attention: Chief, Optical Science Laboratory
Phone: (703) 648-4692

1.23 Shipping Address for Calibration Tests

U.S. Geological Survey
12201 Sunrise Valley Drive
Reston, Virginia 20192
Attention: Frank MacCue (703) 648-4692

1.3 Constructional Design Necessary to Permit Testing

To permit testing for determination of calibrated focal length, distortion, resolving power, fiducial mark locations, and stereomodel flatness, the constructional design of the camera shall be as follows:

1.31 Focal Plane

The focal plane shall be accessible from the rear so that a telescope placed behind the camera may view objects in front of the lens, limited only by the size of the focal plane opening. It shall be possible to place the surface of an optical flat having a thickness of 31 mm (1 1/4 in.) on the focal plane of the camera.

1.32 Focal Plane Frame

The focal plane frame shall be so constructed as to permit placement of a glass photographic plate on its surface so that the emulsion surface of the glass photographic plate lies in the true focal plane of the camera. The size of the frame image shall be 23 x 23 cm (9 x 9 inches).

1.4 Camera Components Required for Testing

1.41 Lens Cone Assembly

The lens cone assembly must be so constructed that the lens and fiducial marks comprise an integral unit. The design of the lens cone shall be such that it maintains the required precise relationship between the lens,

fiducial marks, and focal plane on which the film platen shall be positioned. Construction shall be such as to maintain the dimensional relationship of these components under normal conditions of transportation, handling, and use, which can include considerable mechanical and thermal shock. The structure holding these components shall be supported in use in such a manner that stresses likely to change the required dimensional relationships cannot be transmitted to it from the supporting body or mount. The lens cone assembly shall be so designed and manufactured that all parts will return precisely to their original positions, should it be necessary for any reason to disassemble it. However, any disassembly of the lens cone assembly shall require recalibration at contractor's expense before further use.

1.42 Film Platen

Cameras shall be equipped with an approved means of flattening the film at the instant of exposure. The platen against which the film is held shall not depart by more than ± 0.013 mm from a true plane, when the camera/magazine vacuum is applied.

1.43 Shutter

The camera shall be equipped with a between-the-lens shutter of the variable-speed type. The range of speed settings shall be such that, for all anticipated combinations of flight heights, aircraft speeds, film speeds, and light conditions, the camera will produce high-resolution photographs. The effective exposure time and efficiency of the shutter as mounted in the camera will be measured at a maximum aperture and shall have a minimum efficiency of 70 percent at a speed of 1/200 second. This test shall be made in accordance with the "American National Standard Shutter Tests for Still-Picture Cameras," Method I, approved January 12, 1972, American national Standards Institute (PH3.48-1972) (R1978). The shutter shall have a speed of 1/400 second and slower for exposing film negatives during calibration.

1.44 Fiducial Marks

Either four or eight fiducial marks are required. If the four fiducial marks are in the corners of the format area, there must be a set of marks (V-notches or equivalent) in the frame at the midsides for use in centering diapositives in a stereoplottter. If there are eight fiducial marks, the corner fiducial marks shall form a quadrilateral whose sides are equal within ± 0.500 mm. The midside fiducial marks shall be equidistant within ± 0.500 mm from the adjacent corner fiducial marks. All fiducial marks and other

marks intended for precise measuring shall be clear and well-defined on the aerial film and shall be of such a form and contrast that the standard deviation of repeated reading of the coordinates of each made on a precision comparator shall not exceed 0.002 mm. For cameras with projection type fiducial marks the projected images of all marks must be in sharp focus on the emulsion surface. Drawings in figure 1 show acceptable fiducial marks and their arrangements. Fiducials without a center point mark or intersecting lines will not be acceptable. Glass or plastic mounts for fiducial marks will not be acceptable.

- 1.441 The lines joining opposite pairs of fiducial markers shall intersect at an angle within one minute of 90 degrees. (See figure 2.)
- 1.442 The intersection of lines between fiducials--the indicated principal point--shall not be further than 0.030 mm from the point of autocollimation. (See figure 2.)

1.45 **Filter**

Only glass filters with metallic antivignetting coating shall be used to reduce the illumination for uniform distribution of light over the focal plane format. A microdensitometer trace will be made from the antivignetting coating side of the filter to determine if any deterioration is present that would affect the uniformity of illumination in the focal plane. Deteriorations in excess of 50% of the height of the nominal curve for a lease type will be reason for rejection of a filter. The surface with the antivignetting coating shall be toward the camera lens. The filter shall have surfaces parallel within 10 seconds of arc, and its optical quality shall be such that its addition to the camera shall enhance the uniformity of focal plane illumination and not cause a reduction in image resolution. Glass filter combinations which may be required will be specified in Section B.

1.5 **Lens and Platen/Magazine Identification**

The camera or lens number, and the most recent calibrated focal length shall be recorded clearly on the film for each frame either on the inside of the focal plane frame or on a data strip between frames. An alpha numeric mark (or symbol) contained in the platen/magazine which identifies the platen/magazine may also be recorded if available on each frame of film. Data markers located on the inside of the focal plane frame shall not exceed 6.35 mm (0.25 inch) in height and 25.4 mm (1.0 inch) in length and shall not obscure any part of the fiducial marks.

1.6 **Optical Requirements**

Cameras will be given both a static and an operational type test made after final assembly of all parts of the camera system with the light filter in place on the lens. All tests of the lens cone assembly for determination of the calibration constants, calibrated focal length, distortion and resolution will be made using high contrast targets and Eastman Kodak Spectroscopic emulsion Type 157-01 on Kodak Aerial Calibration Plates. Cameras will be operationally tested for stereomodel flatness and resolution by exposing Eastman Kodak Double-X Aerographic film 2405 in the camera while mounted on a multicollimator camera calibrator. (The optical requirements for distortion, model flatness, and resolution for various focal length cameras are defined and tabulated in table 1.) The camera focal length stated in Section B must meet the minimum requirements for that focal length as shown in table 1.

1.61 **Distortion**

1.611 **Radial**

The distortion in image position as measured along radial lines from the principal point of symmetry. The value of the average radial distortion referred to the calibrated focal length shall not exceed the amount shown in table 1.

1.612 **Decentering**

The distortion in image position as measured perpendicular to radial lines from the principal point of symmetry. The value of the decentering distortion shall not exceed the amount shown in table 1. This value shall be evaluated for 153 mm cameras only.

1.62 **Point of Symmetry**

The calibrated principal point — the point of symmetry — shall not be further than 0.020 mm from the point of autocollimation for 153 mm focal length lenses and no further than 0.040 mm for all other focal length lenses. (See figure 2 / table 1.)

1.63 **Resolution**

Radial and tangential resolving power, in line pairs per millimeter, shall be no less than the value listed in table 1 for each focal length lens.

1.64 **Test Aperture**

All camera-lens calibration tests shall be made at the maximum aperture specified by the manufacturer for that lens.

1.65 **Model Flatness**

The model flatness test will be performed only for 153 mm and 88 mm cameras. Diapositives will be printed from two film exposures of the collimator targets on micro flat glass plates. Two stereomodels will be analytically formed from these using different halves of the exposures for each model. Each model thus formed will consist of a small fixed number of symmetrically arranged points. The allowable deviation from flatness, taken as the range between the maximum negative and the maximum positive value shall be no greater than $\pm 1/8000$ of the focal length of a nominal 6-inch (153-mm) camera, or $\pm 1/5000$ of the focal length of a nominal 3 1/2-inch (85-88 mm) camera. If elevation discrepancies exceed this value, the camera will not be acceptable. (See table 1.)

Figure 1
EXAMPLES OF ACCEPTABLE FORMS OF FIDUCIAL MARKS

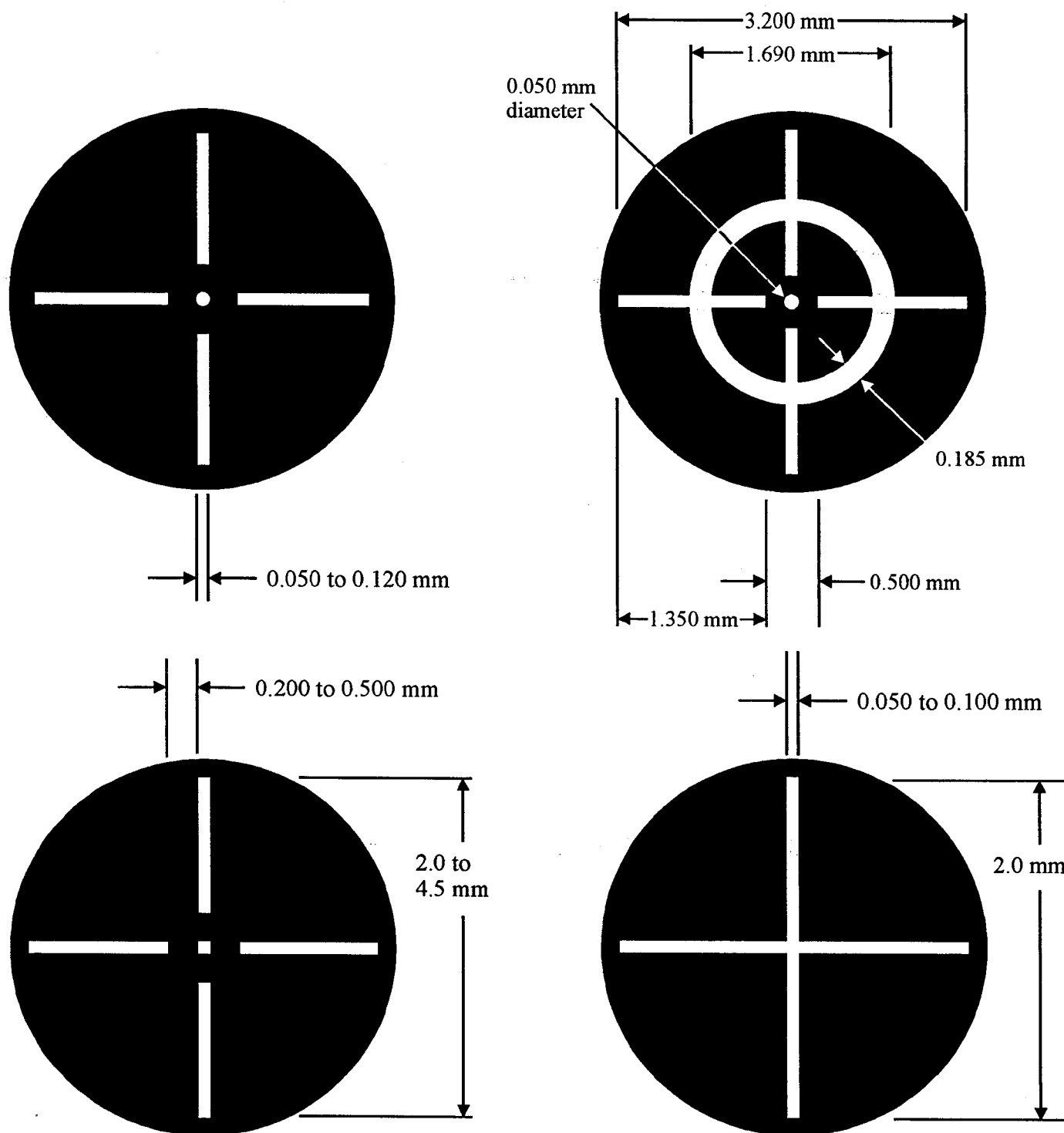
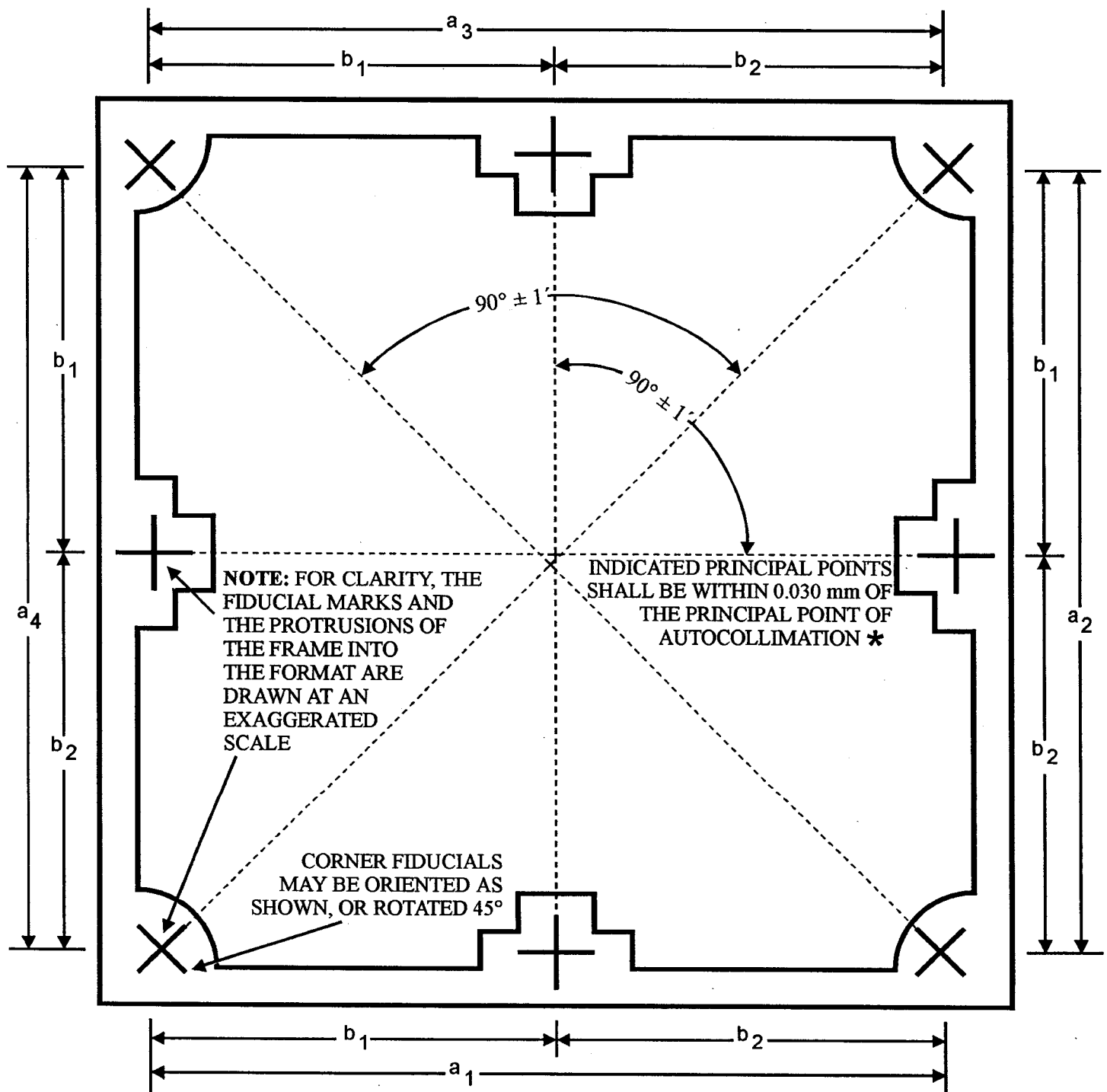


Figure 2
ARRANGEMENT OF FIDUCIAL MARKS



$$a_1 = a_2 = a_3 = a_4 \text{ (within 0.500 mm)}$$

$$b_1 = b_2 (\pm 0.500 \text{ mm})$$

* THE CALIBRATED PRINCIPAL POINT - THE POINT OF SYMMETRY - SHALL BE WITHIN 0.015 mm OF THE PRINCIPAL POINT OF AUTOCOLLIMATION FOR 153 mm FOCAL LENGTH LENSES AND 0.030 mm FOR ALL OTHER FOCAL LENGTH LENSES.

USDA OPTICAL REQUIREMENTS

Table 1

TABULATION OF OPTICAL REQUIREMENTS

| Focal Length | 88mm | 153mm | 210mm | 305mm |
|---|-------|-------|-------|-------|
| Focal Length Within | ± 4mm | ± 3mm | ± 4mm | ± 5mm |
| Useable Angular Field | 120o | 90o | 70o | 50o |
| Field Angle-From Axis out to: | 54.5o | 40o | 30o | 22.7o |
| DISTORTION - At Maximum Aperture | | | | |
| Radial Distortion - Tolerance (um) | ± 15 | ± 10 | ± 20 | ± 20 |
| Decentering Distortion - Tolerance (um) | - | ≤ 8 | - | - |
| MODEL FLATNESS - (um) Total Difference | ± 17 | ± 19 | - | - |

INDICATED PRINCIPAL POINTS (Fiducial Centers)

The indicated principal points - fiducial centers - shall fall within a 0.040mm radius circle around the principal point of autocollimation.

CALIBRATED PRINCIPAL POINT (Point of Symmetry)

The calibrated principal point - point of symmetry - shall fall within a 0.020mm radius circle around the principal point of autocollimation for 153mm focal length lenses and 0.040mm for all others.

RESOLUTION

Measured on Spectroscopic Plate at Maximum Aperture

Minimum Radial & Tangential Resolution in Line Pairs per mm
LENS HALF ANGLE

| Lens | 0o | 7.5o | 15o | 22.7o | 30o | 35o | 40o | 45o | 50o | 54.5o |
|--|----|------|-----|-------|-----|-----|-----|-----|-----|-------|
| 86mm Wild Super Aviogon II Zeiss S-Pleogon A or equivalent | 59 | 59 | 49 | 42 | 35 | 30 | 17 | 14 | 12 | 12 |
| 153mm Wild U. Aviogon Zeiss Pleogon A Jena Lamegon Pl or equivalent | 57 | 57 | 48 | 48 | 40 | 34 | 14 | | | |
| 210mm Wild N-Aviogon II Zeiss Topargon or equivalent | 49 | 49 | 42 | 35 | 29 | | | | | |
| 305mm Wild N. Aviotar Zeiss Topar or equivalent | 48 | 48 | 28 | 24 | | | | | | |