

# REQUEST FOR QUOTATION

SOLICITATION NUMBER: AG-8447-S-12-0007  
DIGITAL AERIAL IMAGERY

## Fishlake National Forest, Utah

Solicitation Issue Date: **July 13, 2012**

Quotation Due Date: **August 13, 2012**



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

### NOTICE TO OFFEROR

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

**SOL.NO: AG-8447-S-12-0007**  
**DUE DATE: 13-AUG-12, 4:30 PM**  
**RECEIVING OFFICE: CONTRACTING**

Mail To: AERIAL PHOTOGRAPHY FIELD OFFICE  
CONTRACTING OFFICER  
2222 WEST 2300 SOUTH  
SALT LAKE CITY, UTAH 84119-2020

## NOTICE TO PROSPECTIVE OFFERORS :

OFFERORS ARE CAUTIONED TO NOTE THE FOLLOWING SPECIAL CONTRACT REQUIREMENTS:

The following information must be submitted with any price quotation: Aircraft and camera(s) proposed for use, incomplete contracts, technical capability statement, image processing methods and software, and past performance. See Section A (Page 2).

This procurement is a total (100%) Small Business Set Aside (FAR 52.219-6).

This RFQ is subject to the Availability of Funds Clause (FAR 52.232-18) See Section B-4.11, Page 11.

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 84119-2020. 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.

<b>REQUEST FOR QUOTATION (THIS IS NOT AN ORDER)</b>		THIS RFQ <input checked="" type="checkbox"/> IS <input type="checkbox"/> IS NOT A SMALL BUSINESS SET-ASIDE		PAGE OF PAGES 1 73
1. REQUEST NO. AG-8447-S-12-0007	2. DATE ISSUED 7/13/2012	3. REQUISITION/PURCHASE REQUEST NO.	4. CERT. FOR NAT. DEF. UNDER BDSA REG. 2 AND/OR DMS REG. 1	RATING
5a. ISSUED BY USDA-FSA-APFO, 2222 W. 2300 S., Salt Lake City, UT 84119			6. DELIVER BY (Date) 11/30/2012	
5b. FOR INFORMATION CALL (NO COLLECT CALLS)			7. DELIVERY	
NAME Michelle C. Clifford		TELEPHONE NUMBER		<input checked="" type="checkbox"/> FOB DESTINATION <input type="checkbox"/> OTHER (See Schedule)
AREA CODE 801		NUMBER 844-2909		9. DESTINATION
8. TO:			a. NAME OF CONSIGNEE USDA-FSA-APFO	
a. NAME		b. COMPANY		b. STREET ADDRESS 2222 West 2300 South
c. STREET ADDRESS			c. CITY Salt Lake City	
d. CITY		e. STATE UT	f. ZIP CODE 84119	e. ZIP CODE 84119
10. PLEASE FURNISH QUOTATIONS TO THE ISSUING OFFICE IN BLOCK 5a ON OR BEFORE CLOSE OF BUSINESS (Date) 8/13/2012		IMPORTANT: This is a request for information and quotations furnished are not offers. If you are unable to quote, please so indicate on this form and return it to the address in Block 5a. This request does not commit the Government to pay any costs incurred in the preparation of the submission of this quotation or to contract for supplies or service. Supplies are of domestic origin unless otherwise indicated by quoter. Any representations and/or certifications attached to this Request for Quotation must be completed by the quoter.		

**11. SCHEDULE (Include applicable Federal, State and local taxes)**

ITEM NO. (a)	SUPPLIES/ SERVICES (b)	QUANTITY (c)	UNIT (d)	UNIT PRICE (e)	AMOUNT (f)
1	Fishlake National Forest, UT Stereo Imagery (SM = square miles) Includes materials listed in B-1.3(a)	2,791	SM		
2	DOQQ Orthorectified Imagery and Compressed Project Mosaic (CPM) Includes materials listed in B-1.3(b)	297	EA		
Submit signed quotations on or before 4:30pm MDT August 13, 2012 to address in 5a, Attn: Contracting Officer Quotations must include this form, Page 2, statement of technical capability and any additional information necessary					

12. DISCOUNT FOR PROMPT PAYMENT	a. 10 CALENDAR DAYS (%)	b. 20 CALENDAR DAYS (%)	c. 30 CALENDAR DAYS (%)	d. CALENDAR DAYS	
				NUMBER	PERCENTAGE

NOTE: Additional provisions and representations  are  are not attached.

13. NAME AND ADDRESS OF QUOTER			14. SIGNATURE OF PERSON AUTHORIZED TO SIGN QUOTATION		15. DATE OF QUOTATION
a. NAME OF QUOTER			16. SIGNER		
b. STREET ADDRESS			a. NAME (Type or print)		b. TELEPHONE
c. COUNTY					AREA CODE
d. CITY		e. STATE	f. ZIP CODE	c. TITLE (Type or print)	NUMBER

NOTE: THIS SECTION MUST ACCOMPANY ANY QUOTATION SUBMITTED.

## SECTION A

### REQUIRED STATEMENTS OF OFFERORS

<b>A-1 AIRCRAFT TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT:</b>			
Make/Model	Registration Number	Operating Ceiling	Offeror Owned (check appropriate block)
			<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-3)

<b>A-2 CAMERA(S) TO BE USED IN COMPLETION OF ITEM(S) IN THIS CONTRACT</b>			
Calibration Report Number	Camera Make/Model	Serial Number	Offeror Owned (check appropriate box)
			<input type="checkbox"/> Yes <input type="checkbox"/> No*
			<input type="checkbox"/> Yes <input type="checkbox"/> No*

Current calibration report(s) must be enclosed or on file at the Aerial Photography Field Office. \*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-3)

<b>A-3 INCOMPLETE CONTRACTS AS OF DATE OF OFFER:</b>	
	<b>2012 Summer Contracts - Remaining Square Miles</b>
U.S. Government Contracts:	
All Other Contracts:	
Total:	

Include contracts that would utilize the resources listed in A-1 and A-2.

#### A-4 TECHNICAL CAPABILITY STATEMENT

A brief statement regarding the offeror's technical capability to successfully perform this contract must be submitted with offer. This statement should include: planned technical approach to job, project scheduling and site basing of aircraft, camera and crew availability, processing methods and software for each of the deliverables in Section B, company's quality control system, personnel qualifications, and incomplete contracts.

#### A-5 PAST PERFORMANCE REFERENCES

If no previous contracts have been held by the offeror with the USDA Aerial Photography Field Office, list at least two (2) references, with which 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.

## SECTION B

PROJECT SERVICES AND REQUIREMENTS

Furnish direct digital aerial imagery and all related services and supplies in accordance with the requirements, specifications, terms, conditions, clauses, and provisions specified herein.

B-1 DIGITAL AERIAL PHOTOGRAPHY SERVICES

<b>Project Item 1: Fishlake National Forest, Utah</b>						
<b>PROJECT CODE</b>	<b>PROJECT IDENTIFIER</b>	<b>AGENCY DESIGNATOR</b>	<b>GSD</b>	<b>BAND</b>	<b>DIGITAL COLLECTION</b>	<b>SQUARE MILES</b>
<b>614080</b>	<b>FS-7-12</b>	<b>USDA-F</b>	<b>50 cm</b>	<b>4</b>	<b>R, G, B, NIR collected simultaneously</b>	<b>2,791</b>

1.1 Intended Use of Imagery

The imagery shall be used by the United States Forest Service for forest and range resource management, monitoring and inventory. Imagery is used to support the management of land, minerals, vegetation, wildlife habitat, recreation and travel. Additional supported activities include watershed health assessments, riparian monitoring, forest health evaluations, and engineering infrastructure design. Aerial imagery depicting the current vegetation condition is needed to establish structural class, canopy closure, and plant association for use in determining vegetation departure from the historic range of variability and in establishing baseline monitoring data. Natural resource and other data will be collected and evaluated by means of photo interpretation (visual display and stereo viewing), image processing and geographic information systems (GIS) technologies.

1.2 Project Item Requirements:

- (a) Spatial Resolution: All imagery shall be acquired at 50cm ground sample distance (GSD) or better. See Attachment B, section 3.3, Original Image Resolution.
- (b) Radiometric Resolution: All imagery shall be collected at a minimum of 12-bits per band.
- (c) Approximate Acquisition Period: August 27, 2012 through September 30, 2012.
- (d) Minimum Sun Angle: 45 degrees.
- (e) Overlaps: Endlap: Optimum 62%; Minimum 57%; Recommended Maximum 67%  
Sidlap: Optimum 30%; Minimum 20%; Recommended Maximum 45%
- (f) Coverage: Imagery shall be collected to provide complete stereo coverage of the project area and boundaries in the government-provided shapefile.

### 1.3 Materials To Be Delivered and Delivery Schedule

Unless otherwise specified, all production items shall be delivered on internal SATA hard drives as described in Section C-7.

- (a) Stereo Imagery: all deliverables shall be shipped no later than sixty (60) days from the end of the acquisition period or any season extension. Early delivery is encouraged to facilitate timely inspection and avoid delays due to peak seasonal inspection workload.

<b>Project Item 1 – Line Item 1: Stereo Imagery Deliverables</b>	<b>Format</b>	<b>Sample Naming (See Exhibit 2)</b>
Project Flight Plan – submit prior to notice to proceed (C-4.2)	ESRI Compatible Shapefile (email file); final in .kml also	None
Pre-production Samples for each Image File type and Stereo Block Files	Same Format as Deliverable (CD, DVD, or Hard Drive)	Naming Convention for Deliverable
4-Band, 16-bit per band, Uncorrected, Georeferenced, Uncompressed Digital Image Files (C-5.1)	GeoTIFF (see Table below for Georeferenced Stereo Imagery File Requirements)	614080_0025_0001_20120827_16b.tif
4-Band, 8-bit per band, Color Corrected, Georeferenced, Uncompressed Digital Image Files (C-5.2)	GeoTIFF (see Table below for Georeferenced Stereo Imagery File Requirements)	614080_0025_0001_20120827_8b.tif
Stereo Block Files for each bit depth and Ranger District (10 total) (C-5.7)	Leica LPS Compatible, either .blk or .prj	614080_8b_01.blk thru 614080_8b_12.blk 614080_16b_01.blk thru 614080_16b_12.blk
ABGPS/IMU Data in raw, projected, and ecef (C-5.5)	ASCII comma delimited text file	None
Photo Center File (C-6.4)	ASCII comma delimited text file	614080_pcf_7-12_1.txt
Project Geodatabase (C-6.5) Flight Plan Feature Class Image Footprint Feature Class Flight Line Feature Class	ESRI File Geodatabase	Project_Geodatabase_614080_7dash12.gdb  tapash_614080_7dash12_1  georeferenced_614080_25_4_8_7dash12_1  flight_line_614080_4dash12_1
Progress Reports (C-6.1)	See Exhibit 4	None
Pilot Logs (C-6.2)		

1. Files Included with Stereo Imagery Delivery: Each file below shall be included with the delivery of the GeoTIFF stereo imagery, using the same naming convention as the GeoTIFF with the appropriate file extension, as indicated below:

<b>Georeferenced Stereo Imagery File Requirements</b>	
<b>Frame-Based Sensor</b>	<b>Scanning (Pushbroom) Sensor – Files for Each Flight Line</b>
<b>.aux</b> auxiliary statistic/projection file	<b>.ads</b> header with pointers to .tif segments
<b>.rrd</b> reduced resolution dataset pyramid file	<b>.hist</b> xml file containing histogram
<b>.sup</b> support/orientation file	<b>.min</b> minification header
<b>.met</b> metadata file	<b>.odf</b> orientation data file
	<b>.odf.adj</b> adjusted orientation after AT
	<b>.sup</b> support/orientation file
	<b>.met</b> metadata file

- (b) Digital Orthorectified Quarter Quadrangles (DOQQ): All materials shall be shipped no later than ninety (90) days from the end of the acquisition period or any season extension.

<b>Project Item 1 – Line Item 2: DOQQ Orthorectified Imagery Deliverables</b>	<b>Format</b>	<b>Sample Naming (See Exhibit 2)</b>
Pre-production Samples - One Quad of DOQQs (C-5.3)	GeoTIFF	Naming Convention for Deliverable
Digital Orthorectified Quarter Quadrangles (DOQQ) (C-5.3)	GeoTIFF	m_3311162_ne_12_50_20120721.tif
RMSE Accuracy and Quality Control Reports (included with DOQQ)	ASCII	None
Seamline Feature Class Data Set and Orthorectified Image Index Feature Class Data Set included in Project Geodatabase (C-6.5)	ESRI file Geodatabase	seamlines_614080_4dash12_1  ortho_index_614080_50_4_7dash12_1
Compressed Project Mosaic (CPM) (C-5.4)	.ecw	614080_7-12-1_m.ecw

- 1.4 Remake Materials: Shall be shipped as soon as possible after correction is made, but no later than 30 days after receipt of the materials or data required for corrections. Remake materials are to be submitted on media separate from original materials.

- 1.5 Importance of Image Quality

Any imagery submitted to the Government that does not meet the minimum quality requirement may impact the Government's ability to properly use the imagery for its intended purpose and may be subject to a price reduction based on the diminished usability of the product.

#### 1.6 Project Flight Planning Requirement

Contractor is required to provide the necessary flight plan, which shall include flight altitude determinations, for the acquisition of precise vertical aerial imagery in accordance with the technical requirements in Section C-4.2, Flight Planning. The flight plan must be submitted for review prior to issuance of notice to proceed.

#### 1.7 Direct Digital Sensor Acquisition

The direct digital imagery acquisition requirements will be for the collection of visible (Red, Green, Blue) and color near infrared (IR) imagery captured simultaneously. The digital sensor system shall be a tested, stable, geometrically calibrated system with appropriate documentation and comply with the technical requirements and specifications of this contract, and Attachment A: USDA Digital Camera Specification which defines the essential elements in securing high quality direct digital imagery.

### B-2 GOVERNMENT-FURNISHED PROPERTY

Pursuant to the Government-Furnished Property (GFP) clause (see Section I, Contract Clauses) the Government shall furnish the item(s) of property listed below as GFP to the Contractor.

#### 2.1 Coverage Shapefile

The Contractor will be furnished upon award one (1) ESRI compatible shapefile containing the required contract coverage for each Project Item awarded. Due to the unique footprint of digital sensors the Contractor is responsible for the complete stereo coverage acquisition within the shapefile area.

#### 2.2 Metadata Template

The Contractor will be furnished upon award data text files (.txt), as applicable, containing Federal Geographic Data Committee (FGDC) compliant metadata templates to be used for: (1) the georeferenced uncompressed digital image files in Sections C-5.1 and C-5.2; (2) the DOQQ files required in Section C-5.3; (3) the CPM files in Section C-5.4; (4) the Stereo Block Files in Section C-5.7; (5) the Photo Center File in Section C-6.4; (6) the Project Geodatabase in Section C-6.5. Government furnished templates will not be provided for other required metadata.

#### 2.3 Ranger District Boundary Files

The contractor will be furnished upon award one set of Ranger District boundary shapefiles for creation of stereo block files in Section C-5.7.

#### 2.4 DOQQ Shapefile

The Contractor will be furnished upon award one (1) ESRI compatible shapefile containing the required DOQQs for each project item awarded.

#### 2.5 Project Geodatabase Template

The Contractor will be furnished upon award one (1) ESRI compatible geodatabase template for use in producing the Project Geodatabase Template in Section C-6.5.

#### 2.6 File Directory Template

The Contractor will be furnished upon award a folder structure template for the delivery drives.

### B-3 EVALUATION OF OFFERS

3.1 Offers shall be evaluated according to the following criteria, including all supporting information furnished by the offeror with their quotation. A total score will be assigned to each offer based on the weights indicated below.

- (a) Price: Completed SF-18 including price per unit and total amount for each item listed. In the event of a mathematical error, the unit price takes precedence over the extended price. The lowest price will receive the highest score. 40% of total score.
- (b) Technical Capability: Completed Section A and brief statements describing the planned technical approach to job, project scheduling and site basing of aircraft, camera and crew availability, processing methods and software for each of the deliverables in Section B-1, company's quality control system, personnel qualifications, and incomplete contracts. Statements will be evaluated and scored by each member of an evaluation team. Scores will then be averaged. 40% of total score.
- (c) Past Performance: Past performance record of similar projects or references. If there is no USDA record of past performance, the contractor may receive a prorated score out of 80 points (rather than out of 100); the lack of past performance has no effect on the total score. 20% of total score.

Please note: Technical capability and past performance, when combined, are more important when compared to price.

3.2 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.

3.3 The Government will award a contract, or contracts, resulting from this solicitation to the responsive and responsible offeror whose offer 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. The highest scored offer from 3.1 is considered to be the best value to the Government.

#### B-4 ADMINISTRATIVE REQUIREMENTS

##### 4.1 Notice to Proceed

The Contracting Officer will authorize and direct the acquisition period to begin or end anytime within thirty (30) days before or after the approximate acquisition dates specified in Section B, depending upon the weather, ground, foliage, and sun angle conditions required for the project item. No imagery shall be undertaken before the Notice to Proceed is issued or after the final date of the acquisition period (or its extension) has occurred. Weather and ground conditions for all project locations will be monitored daily to determine Contractor compliance to performance requirements. The Notice to Proceed will be given by telephone or email, and confirmed in writing by regular mail. Failure of the Contractor to proceed with flights on a project item within ten (10) calendar days after a "Notice to Proceed" is given, may be considered as evidence of failure to perform the work so as to ensure its timely completion. As evidence of performance, Progress Reports shall be submitted.

##### 4.2 Contract Extensions

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-1.4(b).

- (a) 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-1.2(b), Acquisition Period. 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.
- (b) Extension of the Term of the Contract: 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. FAR 52.217-9, Option to Extend the Term of the Contract.

##### 4.3 Ownership of Materials

All original materials shall become the property of the Government upon formal acceptance. No reproductions shall be made prior to inspection by the Government unless specified in the contract or authorized by the Contracting Officer.

#### 4.4 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.

#### 4.5 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 32, dated June 13, 2011 will be applicable for Contractors located nationwide. See Exhibit 3, Wage Determination.

#### 4.6 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 million.

#### 4.7 Invoices

Contractor invoices shall be submitted in an original invoice to the Contracting Officer designated in this contract. To constitute a proper invoice, the invoice must include the following information and/or attached documentation:

- (a) Contractor's name, address, and tax identification number (TIN);
- (b) Invoice date;
- (c) Contract number, or other authorization for delivery of property or services;
- (d) Description, price, and quantity of services actually delivered or rendered;
- (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; and
- (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 seven (7) days of receipt of an invoice and suitably documented.

#### 4.8 Partial Payments

For a partially completed project item or a partially completed area within a project item, acceptance and payment will be made on a unit price basis at the rate of ninety percent

(90%) of the amount due. Any payment thus made is partial payment of the contract. Upon completion and acceptance of the complete project item or area within the project item, the remaining payment will be made, total the full payment due for the project item or line item. Partial Payments must be approved by the Contracting Officer under the conditions stated in FAR 52.232-1, Payments.

#### 4.9 Payment Due Date

The required payment date will be thirty (30) calendar days after the date of the actual receipt of a proper invoice by the officer designated to receive the invoice, or the date contract deliverables are accepted, whichever is later. The date of the payment by electronic funds transfer shall be considered to be the date payment is made.

#### 4.10 Non-Discrimination Statement

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its program 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.

#### 4.11 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.

#### 4.12 Permits and Responsibilities

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

## SECTION C

### DESCRIPTION/SPECIFICATIONS/WORK STATEMENT

#### C-1 SCOPE OF CONTRACT

The general scope of the contract is to procure precise vertical aerial imagery for natural resource inventory and analysis and stereo model review. The Contractor is responsible for furnishing direct digital imagery and related services and supplies in accordance with requirements, specifications, terms and conditions specified herein.

##### 1.1 Technical Requirements and Specifications

The technical requirements and specifications of this contract are described in this section and Attachments A, B, and C which define the essential elements in securing high quality digital imagery. Any deviation from the specifications stated herein may cause increased time and effort in using the imagery as intended.

##### 1.2 Delivery and Performance

All contract materials shall be shipped within the time limits and to the place of delivery specified herein. Performance of the contract shall 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 contract materials are delivered in accordance with the delivery schedule and at the required level of accuracy and quality. The Contractor shall inspect and constantly monitor the image quality and coverage, and shall undertake immediate reflights of any imagery where the quality fails to meet minimum requirements of the contract specifications. Any marginal photography/imagery submitted for inspection which does not meet minimum requirements may be rejected. The marginal photography may be accepted, at the Government's convenience, but shall be subject to a price reduction based on the diminished usability of the product. The nature and urgency of this project may require the Government to make equitable financial adjustments for materials deemed rejectable or where product use is adversely impacted.

##### 1.4 Materials Inspection

All materials specified in Section B-1 will be inspected to determine conformance to all contract requirements and specifications. Inspection of the image files will be performed utilizing a comprehensive method of quality assurance inspection procedures including a random sampling technique to test for compliance to the horizontal accuracy requirement

in the imagery delivered. The Government will make every effort to inspect all material specified within 60 calendar days after they are received at the point designated.

- (a) Marginal Deficiencies: If inspection of the 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.
- (b) Nonconformance with Contract Requirements: If inspection of materials reveals deficiencies that may cause increased time and effort in using the digital imagery and aerial photography as intended, 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:
  - (1) Require the Contractor to take necessary action to ensure that future performance conforms to contract requirements and
  - (2) Reduce the contract price to reflect the reduced value of services performed.

## 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 imagery acquisition, imagery production and related services for the project specified and shall deliver to the USDA all materials called for in Section B-1.

## C-2 APPLICABLE DOCUMENTS

### 2.1 Attachments

The following documents attached to this solicitation document are considered requirements and specifications under the resulting contract(s), as applicable to the Contractor's technical proposal:

- (a) Aerial Photography Field Office (APFO) USDA Specification for Digital Camera Based Acquisition, dated February 1, 2012 (Attachment A)
- (b) Aerial Photography Field Office (APFO) USDA Digital Imagery Quality Specification, dated February 1, 2012 (Attachment B)
- (c) USDA Digital File Format Specification, dated February 1, 2012, Updated for Resource March 21, 2012 (Attachment C)

### 2.2 References

The following documents referenced in this solicitation document are considered requirements and specifications under the resulting contract(s), as applicable to the Contractor's technical proposal:

- (a) Federal Geographic Data Committee (FGDC) Specification, FGDC-STD-001-1998 (“Content Standard for Digital Geospatial Metadata”)
- (b) Federal Geographic Data Committee (FGDC) Specifications, FGDC-STD-007.3-1998 (“Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy”)
- (c) Code of Federal Regulation (CFR) Title 14 (“Federal Aviation Regulations”)
- (d) GeoTIFF Revision 1.0 Specification, dated December 28, 2000 (Version 1.8.2)
- (e) TIFF Specification Revision 6 dated June 3, 1992 (Adobe Systems Inc.)

### C-3 EQUIPMENT REQUIREMENTS

#### 3.1 Platform/Camera Requirements

- (a) Platform/Camera Approval: Any equipment (platform and cameras) proposed to be used by the Contractor must be approved for use by the Contracting Officer (see Attachment A, paragraph 4.0, Digital Camera Approval Requirements, for instructions and process for platform/camera approval). If the platform and camera proposed for use are not owned by the Contractor, a written statement of availability from the owner of the equipment shall be provided to the Contracting Officer.
- (b) System Malfunction: The Contracting Officer shall have the right to require the removal of a camera from use when deficiencies in imagery attributable to the camera are found to exist (see Attachment A, paragraph 3.7, System Malfunctions). Any platform/camera removed from use by the Contracting Officer shall not be returned to use on any APFO contract until the cause of the malfunction is corrected to the satisfaction of the Contracting Officer. That determination will be based on acceptable samples, field reports, manufacturer reports, and/or calibration reports.

#### 3.2 Aircraft Requirements

- (a) FAA Certification. All aircraft used in the performance of 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 imagery under this contract shall be FAA certified to a service ceiling with operating load (crew, sensor system, oxygen, and other required equipment) of not less than the highest altitude required.
- (b) Positive Control Airspace. The project item areas may contain areas of controlled or restricted airspace. It is the responsibility of the Contractor to obtain all approvals necessary to assure that required clearances are achieved. When the flight plan and location of any project area coverage fall 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. In addition, 18 USC Section 795 requires permission of the commanding officer to photograph or map some military and naval installations. If any delay to the acquisition or production schedule is caused due to 18 USC Section 795 or similar statutes, the Contractor is required to

notify the Contracting Officer in writing within 72 hours and shall include detail information regarding the issue, point of contact at the installation, and estimated delay. (See Section B-4.12, Permits and Responsibilities.)

- (c) Aircraft Configuration. The design of the aircraft shall be such that when the sensor system 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. The sensor system port glass shall be free of scratches and of such quality that it will not degrade the resolution or the accuracy of the sensor system.
- (d) Airborne Global Positioning System. The aircraft shall have an Airborne Global Positioning System (ABGPS), Inertial Measurement Unit (IMU) system capable of generating accurate control points used in the creation of the photo-center data file (see Section C-6.4, Photo-Center Data File).

#### C-4 IMAGERY ACQUISITION REQUIREMENTS

##### 4.1 Photographic Conditions

Imagery shall be acquired 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 vegetation or other features. If any conditions besides clouds and cloud shadows noted above are present at time of acquisition, communication between the contractor's flight operations leader and the Contracting Officer or Representative should be in writing to determine possible acceptance of acquisition due to potential USFS mission time constraints.

##### 4.2 Flight Planning

The Contractor shall create a flight plan to be submitted to the Contracting Officer for review prior to receiving the Notice to Proceed, or commencing acquisition of the project area. The flight plan shall provide a layout necessary for acquiring precision, high quality, stereo imagery, and be submitted as shapefiles compatible with ESRI ArcGIS 9.3 and 10 software. Shapefiles shall include the following: a DEM-applied coverage polygon shapefile, a flight line shapefile, and an exposure station point shapefile. Table attributes should include pre-determined flying altitudes (above sea level) and exposure station locations. The boundaries and exact coverage of this project item are determined by the official coverage shapefile and requirements stated in Section B-2, Project Requirements. See Section B-2.1, Coverage Shapefile.

##### 4.3 Flight Requirements

The Contractor shall obtain precise vertical digital imagery in accordance with the following technical requirements:

- (a) Acquisition Periods. The Contractor shall acquire imagery only during that portion of the day when the sun angle exceeds the requirement stated in Section B, Minimum Sun Angle. The Contractor shall limit operations to the dates specified in Section B, or as otherwise provided in writing by the Contracting Officer.
- (b) Tilt. It is desired that exposures be made when the optical axis of the digital sensor is in a vertical position. The Contractor shall not acquire imagery when the tilt (departure from the vertical) of any exposure exceeding four degrees (4°) or relative tilt between any two successive exposures exceeding six degrees (6°). Tilt shall not average more than 2 degrees (2°) in any 16 km (10 mile) section of a flight line and shall not average more than 1 degree (1°) for the entire project.

## C-5 DIGITAL IMAGERY PROCESSING

### 5.1 4-Band, 16-Bit per Band, Radiometrically Uncorrected, Georeferenced, Uncompressed Digital Image Files

Contractor shall provide georeferenced, stereo-coverage, radiometrically uncorrected digital image files at the resolution in accordance with Section B. The image shall be submitted in the native camera footprint. Non-frame based sensors shall submit imagery in a tile format comparable to frame-based sensors with file sizes no larger than 1.3 gigabytes. The file shall cover the entire area of the native camera footprint and shall be projected in the 1983 North American Datum (NAD83), using the native Universal Transverse Mercator (UTM) zone in meters. If any digital image files are rejected by the contractor's quality control process and/or reflights are acquired, only one acceptable image file shall be submitted.

- (a) Image Quality. The Contractor shall not make any radiometric enhancements, such as stretching, dodging, or other Look Up Table (LUT) adjustments, to the acquired imagery. The imagery shall not contain any borders, artifacts, or other non-image items.
- (b) File Format. The imagery shall be in accordance with the Adobe TIFF and GeoTIFF Specifications and shall have the following band order: Red, Green, Blue, and Infrared. GeoTIFF files shall be saved such that the first pixel (0,0) is the northwest corner of the image. The image shall be saved so that the most northwest corner of the image is saved to the file as the top left pixel (i.e. north faces up on a computer screen), and viewable in ArcMap in the same north orientation. The Contractor shall provide an AUX (ESRI and ERDAS compatible Auxiliary statistic/projection file) and a RRD (ESRI and ERDAS compatible Reduced Resolution Dataset pyramid file) for each image file. Each image file shall have an associated Pyramid Layer file created at a 3X3 kernel, Binomial Interpolation. Each image file shall have statistics calculated with the Skip Factor in the X and Y as 1, and Bin Type as Direct. The auxiliary file

shall contain the proper projection information for the tile and shall match the information in the GeoTIFF header. The files shall use the same naming convention as the image tiles but with an “.rrd” and “.aux” extension respectively. The Contractor shall also provide a support file containing photogrammetric metadata associated with each image file, with the image path hardcoded to “f:\.” Files shall use the naming convention specified in Exhibit 2, File Naming Convention. The files shall be stored in a single subdirectory under the root directory called “georeferenced.” Minification pyramid files (from scanning sensors) should be delivered in a separate subdirectory called “minification” under the root directory.

- (c) Pre-production Sample: The Contractor shall submit a single 16 bit per band image prior to production for Government review. The sample shall be a TIFF meeting the requirements of the contract, including TIFF and GeoTIFF tags as specified in Attachment C, and submitted on a standard CD or DVD. The Government will evaluate and provide an approval or disapproval letter with comments no later than three (3) business days, with a goal of 24 hours. Additional project item area samples may be submitted for review if approved by the Contracting Officer or Representative (COR).
- (d) Georeferenced Accuracy. The principal point shall have an accuracy not exceeding a 6 meter offset from true ground.
- (e) Metadata. The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors.

## 5.2 4-band, 8-Bit per Band Color Corrected, Georeferenced, Uncompressed Digital Image Files

The Contractor shall produce 4-band, 8-bit per band, georeferenced, stereo-coverage, color corrected digital image files at the resolution in accordance with Section B. Requirements for this product shall be the same as those listed in Section C-5.1 with the exception of the following elements:

- (a) Image Quality: Contractor shall make necessary radiometric adjustments, including stretching, dodging, color correction, etc., to the acquired imagery in order to match ground conditions at the time of exposure and to ensure the best possible color balance of the images across the project area for both natural color and color infrared. The RGB and NIR should be balanced in all frames to remove hot spots or ground condition differences from multiple acquisition dates without compromising the validity of the data. A pixel value of “0,0,0,0” should be used only for non-data values. All imagery shall meet the quality requirements specified in Attachment B, USDA Digital Imagery Quality Specifications.
- (b) Pre-Production Sample: The Contractor shall submit a sample of radiometrically corrected images prior to production for Government review. If the project area has a diversified

landscape, the contractor shall provide enough samples to properly reflect the overall project landscapes. The sample(s) shall be provided as a georeferenced TIFF(s) meeting all image requirements, including TIFF and GeoTIFF tags specified in Attachment C, and submitted on a standard CD or DVD (labeling requirements in Section E are not required). The Government will evaluate and provide an approval or disapproval letter with comments no later than three (3) business days, with a goal of 24 hours. Additional project item area samples may be submitted for review if approved by the Contracting Officer Representative (COR).

### 5.3 Digital Orthorectified Quarter Quadrangle (DOQQ) Tiles

The Contractor shall provide ortho-rectification services to produce 4-band, 8-bits per band, mosaicked digital orthorectified quarter quadrangles (DOQQs) for the project area defined in Section B-2.1, Coverage Shapefiles. The DOQQ shall cover the entire image area of one quarter of a USGS standard quadrant, with a 100 meter minimum buffer on all four sides. The DOQQs shall be projected in NAD83 native UTM Zone in meters.

- (a) Image Quality: All DOQQs shall meet the image quality requirements specified in Attachment B, USDA Digital Image Quality Specifications. The Contractor shall radiometrically balance the files used to create the DOQQs to eliminate any checker board pattern appearance. Significant radiometric differences among image frames inhibits interpretation of ground features. The DOQQs shall not contain any borders, artifacts, or other non-image items.
- (b) Seamlines: Image seams should be blended to a smooth seam. Visible seamlines within or between tiles which exhibit a noticeable edge or displacement effect are not acceptable. Sharp contrast should not be visible at seams, as it affects image interpretation. Placement of seamlines in tree and shrub vegetation should be minimized. Seamlines should be centered on linear features such as roads, rivers, streams, and trails when available. When linear features are not available, seamlines shall be placed at landcover type transition areas such as between a meadow and forested area or based on terrain breaks derived from topographic data such as ridgelines and valley bottoms.
- (c) Coverage: When a DOQQ partially covers the forest boundary, the Contractor may elect to submit a partial DOQQ so that it completely covers the forest boundary. Any partial DOQQ shall include a 100 meter buffer on the outside of the forest boundary.
- (d) Pre-Production Sample: The Contractor shall submit a sample set of four DOQQs that make up the same quad prior to production for Government review. If the project area has a diversified landscape, the contractor shall provide enough samples to properly reflect the overall project landscapes. The samples shall be a TIFF and meet all image requirements, including TIFF and GeoTIFF tags as specified in Attachment C, submitted on a standard CD or DVD (labeling requirements in Section E are not required). The Government will evaluate and provide an approval or disapproval letter with comments no later than three (3) business days, with a goal of 24 hours.

- Additional project item area samples may be submitted for review if approved by the Contracting Officer or Representative (COR).
- (e) Spatial Resolution: Specified in Section B-1
  - (f) Horizontal Accuracy: All well-defined points tested on Orthorectified tiles shall fall within 6.0 meters of true ground at a 95% confidence level (see FGDC-STD-007.3-198, page 3-10).
  - (g) File Format. The DOQQ tiles shall be a 4-band, 8-bit per band georeferenced tagged image file format (GeoTIFF) created in accordance with Attachment C, paragraph 4.0, USDA File Format Specification. Files shall use the same file naming specified in Exhibit 2, File Naming Convention and Exhibit 5, Quarter Quad Numbering Logic. The files shall be stored in a single subdirectory under the root directory called “ortho”.
  - (h) Raster Support File: The Contractor shall provide an AUX (ESRI and ERDAS compatible Auxiliary statistic/projection file) and a RRD (ESRI and ERDAS compatible Reduced Resolution Dataset pyramid file) for each image file. Each image file shall have an associated Pyramid Layer file created at a 2X2 kernel, Binomial Interpolation. Each image file shall have statistics calculated with the Skip Factor in the X and Y as 1, and Bin Type as Direct. The auxiliary file shall contain the proper projection information for the tile and shall match the information in the GeoTIFF header. The files shall use the same naming convention as the image tiles but with an “.rrd” and “.aux” extension respectively.
  - (i) Image Source: The Contractor may use imagery from multiple exposures, i.e., using the “sweet spot” from a preceding or succeeding image, when creating the tile images. Using “chips” (imagery pieces from other frames) to correct defects is also permitted. All exposures shall be from the same type of sensor and must be from the same acquisition season. When multiple exposures are used in creating a tile, the acquisition date with the largest area shall be used when reporting dates in a single date field, such as metadata or attribute data. An average or mean date shall not be used.
  - (j) Metadata: The Contractor shall create Federal Geographic Data Committee (FGDC) compliant, per FGDC-STD-001-1998 specification, metadata file for each digital image file. Metadata must include a separate lineage section for each georeferenced, uncompressed digital image file used in the creation of the DOQQ. The lineage title will contain the actual file name of the image tile used. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. The metadata file shall use the same naming convention as the DOQQ but shall use a “.met” extension. A template will be provided by the Government.
  - (k) RMSE Accuracy and Quality Control Report: The Contractor shall provide RMSE accuracy reports and quality control reports generated during the AT and/or orthorectification processes for all image files in ASCII.

#### 5.4 Compressed Project Mosaic (CPM)

The Contractor shall produce a 4-band, 8-bit compressed project mosaic (CPM) file for each project item using the imagery associated with the tiles created in Section C-5.3, Digital Orthorectified Quarter Quadrangle Tiles. The CPM shall be projected in NAD83, UTM Zone 12 in meters.

- (a) Image Quality. The Contractor shall tone balance the composite DOQQs to give the CPM a consistent and uniform image quality. The resulting CPM should maintain as much of the original color and appearance of the color corrected tiles as practical.
- (b) Horizontal Accuracy. The accuracy requirements from Section C-5.3(f), Horizontal Accuracy Requirements, shall be preserved when creating the CPM using the imagery associated with the quarter quadrangle tiles.
- (c) File Format. The CPMs shall be created in Enhanced Compression Wavelet format with the following settings:
  1. Output file type is .ecw
  2. Compression type is set to correct spectral resolution (multiband)
  3. Generate NULL opacity mask channel is checked
  4. Target compression ratio is 20
  5. Output resolution is set by the compressor
- (d) Metadata. The Contractor shall create a Federal Geographic Data Committee (FGDC) compliant, per the FGDC-STD-001-1998 specification, metadata file using the Government provided template for each CPM generated. The metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. The metadata file shall use the same naming convention as the CPM but shall use a “.met” extension.

#### 5.5 ABGPS/IMU Data Files

The Contractor shall post-process Airborne Global Positioning System (ABGPS) and Inertial Measurement Unit (IMU) data. The Contractor shall submit the raw and processed data. The processed data shall be compatible with ERDAS Imagine, Leica Photogrammetry Suite (LPS), ERDAS Stereo Analyst for ArcGIS, BAE Socet Set, and ERDAS Stereo Analyst for IMAGINE.

The Contractor shall deliver the data in two coordinates systems: projected (using the same coordinates reference system as the GeoTIFF images) and earth-centered earth-fixed (.ecf) format.

- (a) File Format: The ABGPS/IMU Data shall be an ASCII text file. The ASCII text file shall be comma delimited in the following order of ABGPS/IMU post processed data:

Image File Name    X        Y        Z        Kappa Phi    Omega

ABGPS/IMU data files shall be delivered on internal SATA computer hard drives. The files shall be stored in a separate subdirectories, “raw” and “processed,” under the root directory called “gps”.

- (c) Metadata: The Contractor shall create a metadata file for each ABGPS/IMU file that includes the date of creation and a brief description of the data.

#### 5.6 Supplemental GPS Ground Data

The Contractor shall provide any GPS ground data used to supplement the ABGPS positional data adjustments. For example, base stations or CORS. The data shall use the same datum and projection required for the GeoTIFF image files.

- (a) File Format: Supplemental data shall be delivered in a non-proprietary format mutually agreeable to the Government and Contractor. Contractor may use any consistent and logical naming convention. The files shall be stored in a single subdirectory under the root directory called “gps\_base”.
- (b) Metadata: The Contractor shall create a metadata file for each supplemental ground data file that was used to supplement positional data.

#### 5.7 Stereo Block Files

The Contractor shall provide stereo block files so that digital image files created in Section C-5.1, 16-Bit Radiometrically Uncorrected, Georeferenced, Uncompressed Digital Image Files, Section C-5.2, 4-Band, 8-Bit per Band, Color Corrected, Georeferenced, Uncompressed Digital Image Files can be brought in and viewed in stereo-pairs with very minimal adjustment to the x or y parallax. Data fields in the stereo block file shall be populated with sensor specific data. Each block file should include the average flying height for the area covered by that block file, rather than for the entire project area. In the case of reflights or the completion flight line(s) during an additional acquisition season, the stereo block file must be updated to include new and/or reflight imagery for the affected flight lines.

- (a) Image Reference Structure: One stereo block file shall be produced for each Ranger District, as defined in Exhibit 1(c), and for each image file bit depth/image type. Each block file shall contain reference to images for only one Ranger District and one bit depth. Example: one stereo block file references the 8-bit image files for the Fillmore Ranger District and a second stereo block file references the 16-bit image files for the Fillmore Ranger District.
- (b) File Format. The stereo block files shall be Leica Photogrammetry Suite (LPS) compatible and shall be readable in Stereo Analyst extensions for ERDAS IMAGINE 2011 and ESRI ArcGIS 9.3 and 10, as well as LPS. The Government prefers the use of .blk over .prj files. See Exhibit 2 for naming convention. The stereo block files, georeferenced digital image files, and all associated files shall be stored in a single

subdirectory called “georeferenced” under the root directory. **Image and data paths for the Stereo Block Files (.blk or .prj) and support files (.sup) should be hardcoded to “f:\”.**

- (c) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each block file. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. A Metadata template will be provided.

## 5.8 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 “Thursday, August 18, 2012 5:09:38 PM.”

## C-6 PROJECT MANAGEMENT

The Contractor shall establish and maintain a project management system with a designated project manager for this effort. Project management consists of those activities required to plan, manage, administer, and control efforts to accomplish the objective of the contract. The project manager identified in the proposal will serve as the primary point of contact for the Contractor’s activity with the Government. The project manager’s contact information shall be identified, in writing, to the Contracting Officer within 21 calendar days of contract award.

### 6.1 Progress Reports

A Progress Report is required for each day progress is made in acquiring project imagery. Each progress report shall be sent by email transmission not later than the day following performance and only for days when performance was accomplished.

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 area is completed or the photographic season and any extensions end. If reflights are determined necessary or ordered by the Contracting Officer, progress reports covering such performance are required.

An e-mail address will be provided at contract award. See Exhibit 4, Progress Report, for syntax and example.

### 6.2 Flight Logs

The Contractor shall maintain daily flight logs for all acquisition missions. As a minimum, flight logs should record date of flight, tail number, camera serial number and for each

flight line information should include: line number, start and stop time, direction, altitude, speed, and number of exposures.

### 6.3 Subcontract Management

If the Contractor uses subcontractors in the performance of the contract, a plan and procedure will be established to manage its subcontractors. Contractor should give prior notification of any subcontracts. The Contractor is encouraged to maximize its use of partnerships and subcontractors to accomplish the requirements of this contract. However, the Contractor is solely responsible for the performance and cost control of its partnerships and subcontractors.

### 6.4 Photo-Center File

The Contractor shall prepare a digital photo-center data file for the aerial imagery delivered under this contract. The photo-center location, latitude and longitude coordinates, shall be corrected to reflect the physical ground location and shall be accurate within 6 meters of true location. The coordinates shall be expressed in Decimal Degrees and formatted to the same datum and projection required for the GeoTIFF image files. The photo-center file must be updated with any resubmissions or corrections to imagery files.

- (a) File Format. The photo-center file(s) shall be provided in ASCII comma delimited text format. A comma delineated header file shall precede the data in each file as shown in the example. Files shall use the naming convention specified in Exhibit 1, File Naming Convention. The file(s) shall include the following attributes:

DESCRIPTION	MAX NUMBER OF CHARACTERS IN FIELD	HEADER NAME
Project Identification Code	6	ProjID
Flight Line Number*	4	FltLn
Exposure Number*	4	ExpNum
Date of Exposure (YYYYMMDD)	8	ExpDate
Time of Exposure – Local 24 Hour Clock (HHMMSS)	6	ExpTime
Sensor Serial Number**	15	Sensor
Corrected Latitude (DD.DDDDDD)	9	Lat
Corrected Longitude (-DDD.DDDDDD (Negative))	11	Lon
Flight Altitude in meters at camera (MMMMM.MM; MSL)	8	FltAlt
Number of GPS Satellites Acquired	2	GPSNum
Position Dilution of Precision (PDOP)	3	PDOP
IMU omega value (Radians)	10	Omega
IMU phi value (Radians)	10	Phi
IMU kappa value (Radians)	10	Kappa

\* Same image number used for image file naming convention.

\*\* If a digital camera has more than one sensor head please use the camera serial number.

Example:

ProjID,FltLn,ExpNum,ExpDate,ExpTime, Sensor,Lat,Lon,FltAlt,GPSNum,PDOP,Omega,Phi,Kappa  
614080,25,1,20110827,130755, 12345678,57.71936,-135.41498,7048.63,5,1.5,.0001358,.01073000,-.873265

(b) Media. Photo-center file(s) shall be delivered on internal SATA computer hard drives. The files shall be stored in a single subdirectory called “pcf” under the root directory.

(c) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each photo-center file. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. A metadata template will be provided.

## 6.5 Project Geodatabase

The Contractor shall provide an ESRI® compatible (with ArcGIS 9.3 and 10) file geodatabase projected in the same coordinate system as specified in Section C-5.1 and C-5.2 (also Sections C-5.3 and C-5.4 if applicable). The geodatabase shall contain a flight plan feature data set that contains a polygon feature class for each georeferenced exposure footprint, a line feature class for each flight line, and a point feature class for each photo center location delivered under this contract. If ortho option items are awarded, the project geodatabase shall also contain a polygon feature class for an Orthorectified image index and a line feature class for the seamlines. The photo-center location, latitude and longitude coordinates, shall be corrected to reflect the physical ground location and shall be accurate within 6 meters (19.7 feet) of true ground. The coordinates shall be expressed in Decimal Degrees and formatted to the same datum and projection required for the GeoTIFF image files. The project geodatabase must be resubmitted with corrections reflecting any image corrections, reflights, or completion of additional flights after original submission. The filename for the Geodatabase and all feature data sets shall use the naming convention specified in Exhibit 2, File Naming Convention. A template will be provided by the Government.

(a) Photo Center Point Feature Class. The flight plan feature data set shall include the following attributes for the photo center point feature class:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	614080
Flight Line number	FLTLN	Char(4) <sup>±</sup>	0025
Exposure number	EXPNUM	Char(4) <sup>±</sup>	0001
Date of exposure (YYYY-MM-DD)	IDATE	Char(10)	2012-08-27
Image file name	NAME	Char(50)	614080_0025_0001_20120827.tif

Point Acquisition date/time *	DATE	Char(16)	08/27/2012 13:52
Color Type **	BCON	Char(3)	M4B
Camera type ***	CAM_TYPE	Char(20)	Digital
Camera manufacturer	CAM_MAN	Char(50)	Zeiss
Camera model	CAM_MOD	Char(25)	DMC
Sensor serial number	SENSNUM	Char(100)	30029
Corrected center point latitude (DD.DDDDDD)	LAT	Double(19)‡	57.71936
Corrected center point longitude (-DDD.DDDDDD)	LON	Double(19)‡	-135.41498
Flight altitude in meters at camera (MMMMM.MM; MSL)	FLTALT	Double(19)‡	7048.63
Number of GPS satellites acquired	GPSNUM	Short Integer	5
Position Dilution of Precision (PDOP)	PDOP	Double(19)‡	1.5
IMU omega value (Radians)	OMEGA	Double(19)‡	.0001358
IMU phi value (Radians)	PHI	Double(19)‡	.01073000
IMU kappa value (Radians)	KAPPA	Double(19)‡	-.873265

± Padded with leading zeros

‡ Double data type shall be length of 19 (18 precision, 11 scale)

\* Local 24-hour clock. The start/end time will be for the collection of the individual polygon (will be the same for frame-based systems)

\*\* Possible values are: NC (natural color), CIR (color infrared), and M4B (4-band)

\*\*\* Possible values are: Digital or Film

(b) Flight Line Feature Class. The flight plan feature data set shall include the following attributes for the flight line feature class:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	614080
Flight Line number	FLTLN	Char(4)±	0025
Date of exposure (YYYY-MM-DD)	IDATE	Char(10)	2012-08-27
Flight Line start date/time *	SDATE	Char(16)	08/27/2012 13:52
Flight Line end date/time *	EDATE	Char(16)	08/27/2012 13:53
Color Type **	BCON	Char(3)	M4B
Camera type ***	CAM_TYPE	Char(20)	Digital
Camera manufacturer	CAM_MAN	Char(50)	Intergraph
Camera model	CAM_MOD	Char(25)	DMC

Sensor serial number	SENSNUM	Char(100)	30029
Flight Line Direction	DIR	Char(20)	North
Flight altitude in meters at camera (MMMMM.MM; MSL)	FLTALT	Double(19) <sup>‡</sup>	7048.63

<sup>±</sup> Padded with leading zeros

<sup>‡</sup> Double data type shall be length of 19 (18 precision, 11 scale)

\* Local 24-hour clock. The start/end time will be for the collection of the individual polygon (will be the same for frame-based systems)

\*\* Possible values are: NC (natural color), CIR (color infrared), and M4B (4-band)

\*\*\* Possible values are: Digital or Film

(c) **Image Footprint Polygon Feature Class.** The flight plan feature data set shall include the following attributes for the image footprint polygon feature class:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	614080
Flight Line number	FLTLN	Char(4) <sup>±</sup>	0025
Exposure number	EXPNUM	Char(4) <sup>±</sup>	0001
Date of exposure (YYYY-MM-DD)	IDATE	Char(10)	2012-08-27
Image file name	NAME	Char(50)	614080_0025_0001_20120827_16b.tif
Polygon start date/time*	SDATE	Char(16)	08/27/2012 13:52
Polygon end date/time*	EDATE	Char(16)	08/27/2012 13:53
Color Type**	BCON	Char(3)	M4B
Camera type***	CAM_TYPE	Char(20)	Digital
Camera manufacturer	CAM_MAN	Char(50)	Intergraph
Camera model	CAM_MOD	Char(25)	DMC
Sensor serial number	SENSNUM	Char(100)	30029
Corrected center point latitude (DD.DDDDDD)	LAT	Double(19) <sup>‡</sup>	57.71936
Corrected center point longitude (-DDD.DDDDDD)	LON	Double(19) <sup>‡</sup>	-135.41498
Flight altitude in meters at camera (MMMMM.MM; MSL)	FLTALT	Double(19) <sup>‡</sup>	7048.63
Number of GPS satellites acquired	GPSNUM	Short Integer	5
Position Dilution of Precision (PDOP)	PDOP	Double(19) <sup>‡</sup>	1.5

IMU omega value (Radians)	OMEGA	Double(19) ‡	.0001358
IMU phi value (Radians)	PHI	Double(19) ‡	.01073000
IMU kappa value (Radians)	KAPPA	Double(19) ‡	-.873265

± Padded with leading zeros

‡ Double data type shall be length of 19 (18 precision, 11 scale)

\* Local 24-hour clock. The start/end time will be for the collection of the individual polygon (will be the same for frame-based systems)

\*\* Possible values are: NC (natural color), CIR (color infrared), and M4B (4-band)

\*\*\* Possible values are: Digital or Film

(d) Seamline Feature Class. The feature class shall include the following attributes:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	614080
Area Name	AREA_NM	Char(100)	Fishlake NF
Method of Creation***	METHD	Char(10)	Manual
Software Used to Generate Seamlines	SOFT	Char(50)	Socet_Set

\*\*\* Possible values are: Manual or Automatic

(e) Orthorectified Image Index Feature Class. The feature class shall include the following attributes:

ATTRIBUTE DESCRIPTION	COLUMN NAME	DATA TYPE	EXAMPLE
Project Identification Code	PROJID	Char(6)	614080
Area Name	AREA_NM	Char(100)	Fishlake NF
Majority Date of Imagery (YYYY-MM-DD)	IDATE	Char(10)	2012-08-27
Image File Name	NAME	Char(50)	m_3311162_ne_12_50_20120721.tif
Pixel Resolution in centimeters	RES	Double(5)	50
Color Type**	BCON	Char(3)	M4B
Image Type	IMG_TYPE	Char(20)	DOQQ

\*\* Possible values are: NC (natural color), CIR (color infrared), and M4B (4-band)

- (f) Media. The Project Geodatabase shall be delivered on internal SATA hard drives. The files shall be stored in a single subdirectory called “index” under the root directory.
- (g) Metadata. The Contractor shall create FGDC compliant, per the FGDC-STD-001-1998 specification, metadata file for each Project Geodatabase. Metadata must parse cleanly through the USGS metadata parser “mp” version 2.8.10 (or later version) without any errors. A metadata template will be provided.

#### C-7 MEDIA REQUIREMENTS

Original submission of materials should be delivered on separate media from any remakes, and include a separate packing slip.

Internal SATA Hard Drives: All hard disk drives (HDDs) used to deliver imagery shall be internal Serial Advanced Technology Attachment (SATA) 3½ inch, 3.0 Gbit/s transfer-rate hard drives, with a minimum rotation speed of 7,200 rpm, not more than 2 Terabyte capacity. **Maximum disk space that can be used cannot exceed ninety percent (90%) of the individual hard drive capacity.** The SATA drives shall be formatted using Microsoft’s NTFS file system. Each drive will be enclosed in a static bag and shall have one label attached directly to the outer surface of the static bag and on placed directly on the internal hard drive identifying the project contained on the drive in accordance with Exhibit 3, Figure 2, Hard Drive Labeling Requirements. The drives shall become property of the Government and will not be returned to the Contractor.

## LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

<u>Exhibit</u>	<u>Description</u> .....	<u>Page</u>
Exhibit 1	Project Maps (3 pages) ..... Figure 1(a), Project Boundaries Figure 1(b), DOQQ Figure 1(c), Ranger District Boundaries for Stereo Block File Production	29-31
Exhibit 2	File Naming Convention (4 pages).....	32-35
Exhibit 3	Labeling Requirements (2 pages).....	36-37
Exhibit 4	Progress Report (2 pages).....	38-39
Exhibit 5	Quarter Quad Numbering Logic (1 page).....	40
Exhibit 6	Wage Determination (4 Pages).....	41-44
Exhibit 7	Glossary and Definitions (2 pages).....	45-46
Exhibit 8	Flight Line Naming (2 pages).....	47-48
Attachment A:	Aerial Photography Field Office (APFO) Specification for Digital Camera Based Acquisition, dated February 1, 2012 – modified for USFS Resource Imagery March 26, 2012 (4 pages)	
Attachment B:	Aerial Photography Field Office (APFO) USDA Digital Imagery Quality Specification, dated February 1, 2012 – modified for USFS Resource Imagery March 26, 2012 (4 pages)	
Attachment C:	USDA Digital File Format Specification, April 16, 2010 - modified for USFS Resource Imagery March 26, 2012 (11 pages)	
Attachment D:	Clauses and Provisions (6 pages)	

**EXHIBIT 1**  
**Figure 1(a)**  
**PROJECT MAP**

U.S. DEPARTMENT OF AGRICULTURE  
AERIAL IMAGERY  
SOLICITATION NO: AG-8447-S-12-0007 (USDA-FS-7-12)  
ITEM 1: Fishlake National Forest,  
UTAH  
GROUND SAMPLE DIST: 50cm (19.7 inches)  
IMAGERY: 4 Band Direct Digital  
PROJECT IDENTIFICATION CODE: 614080

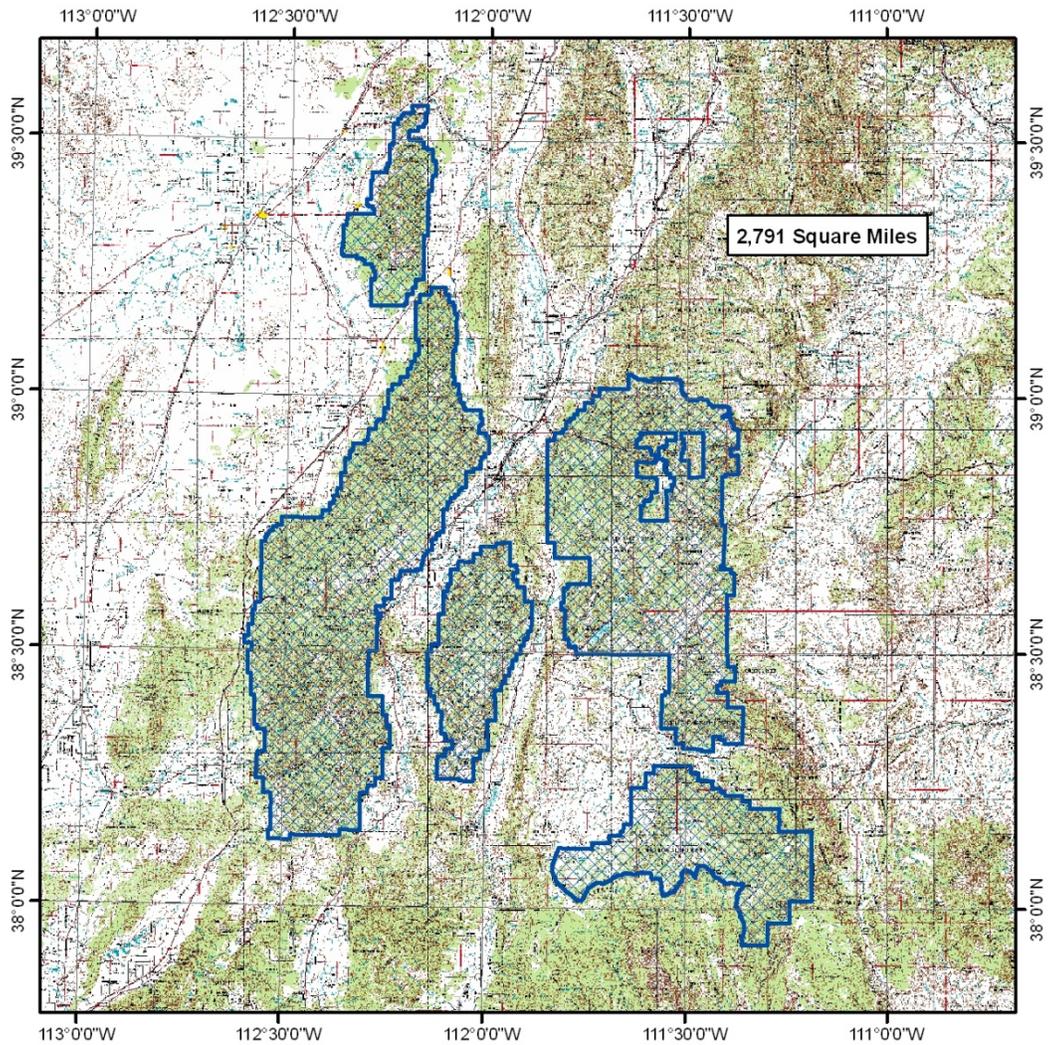


EXHIBIT 1  
**Figure 1(b)**  
PROJECT MAP – DOQQ OPTION ITEM 2

U.S. DEPARTMENT OF AGRICULTURE  
AERIAL IMAGERY  
SOLICITATION NO: AG-8447-S-12-0007 (USDA-FS-7-12)  
ITEM 1: Fishlake National Forest,  
UTAH  
GROUND SAMPLE DIST: 50cm (19.7 inches)  
IMAGERY: 4 Band Direct Digital  
PROJECT IDENTIFICATION CODE: 614080

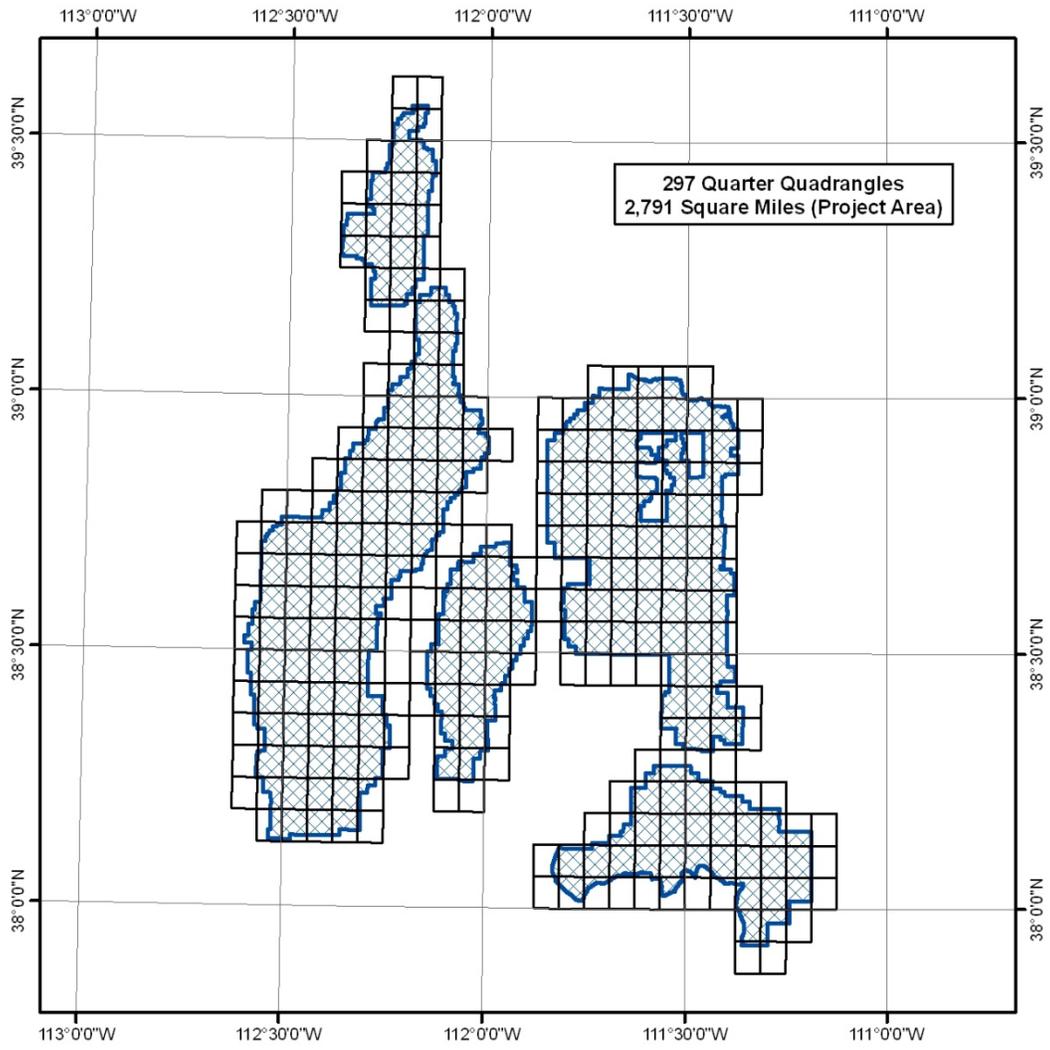


EXHIBIT 1  
Figure 1(c)  
PROJECT MAP – RANGER DISTRICT BOUNDARIES

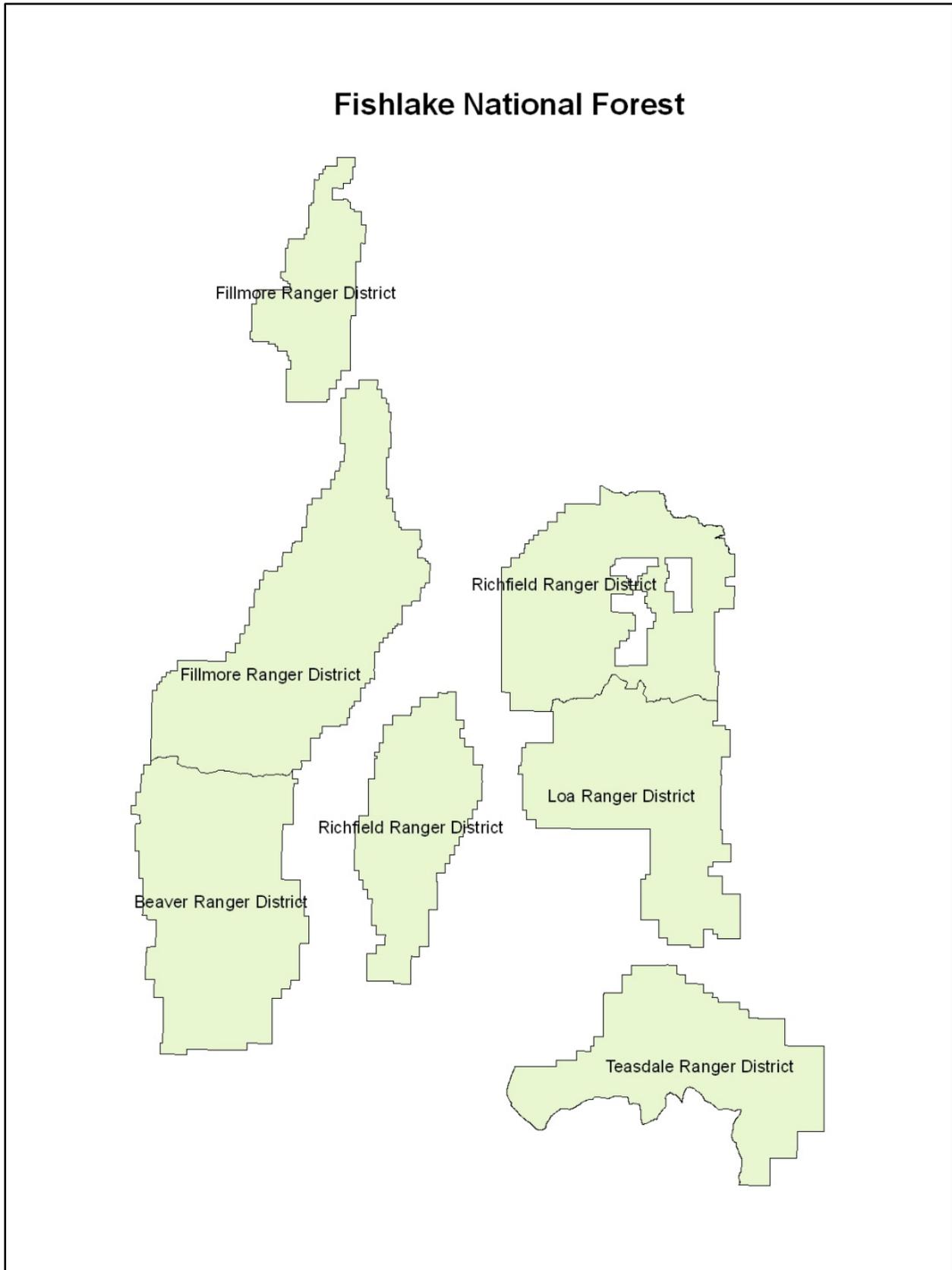


EXHIBIT 2  
FILE NAMING CONVENTION

**Georeferenced, Digital Image Files:**

File Name: <project code>\_<flight line >\_<exposure>\_<yyyymmdd>\_<bitspectral>.tif

<project code> - project code for each project item specified in Section B  
 <flight line> - flight line number (4 characters padded with leading zeros)  
 <exposure> - consecutively numbered value (4 characters padded with leading zeros)  
 <yyyymmdd> - image exposure date  
 <bitspectral> - image bit depth (16b, 8b, 16bp for panchromatic band)

Example: 614080\_0025\_0001\_20120827\_8b.tif  
 614080\_0025\_0001\_20120827\_16bp.tif

**Quadrangle, Quarter Quadrangle and Quarter-Quarter Quadrangle Image Tiles:**

QQQ File Name: m\_<lat><lon><quad>\_<loc>\_<n>\_<xx>\_<r>\_<yyyymmdd>.tif

QQ File Name: m\_<lat><lon><quad>\_<loc>\_<xx>\_<r>\_<yyyymmdd>.tif

Q File Name: m\_<lat><lon><quad>\_<xx>\_<r>\_<yyyymmdd>

m = multispectral  
 <lat> - latitude, identified by 2 digit numerical value of a 1° block  
 <lon> - longitude, identified by 3 digit numerical value of a 1° block (including the leading "0" if needed)  
 <quad> - quadrangle number, identified by grid number  
 <loc> - quadrangle location, identified by grid letters (nw, ne, sw, se)  
 <n> - quarter quadrangle location, identified by number (1, 2, 3, 4)  
 <xx> - two digit UTM zone  
 <r> - resolution in centimeters  
 <yyyymmdd> - date of acquisition (majority date)

QQQ Example: m\_3311162\_ne\_1\_12\_50\_20120721.tif

QQ Example: m\_3311162\_ne\_12\_50\_20120721.tif

Q Example: m\_3311162\_12\_50\_20120721.img

**Compressed Project Mosaic File:**

File Name: <project code>\_<projid>-<item>\_<m>.ecw

<project code> - project code  
 <projid> - project identifier  
 <item> - item number  
 <m> - band designator ("m" = multi spectral, "n" = natural color, "c" = infrared)

Example: 614080\_7-12-1\_m.ecw

## EXHIBIT 2 (Cont'd)

**Photo-center File:**

File Name: <project code>\_pcf\_<projid>.txt

<project code> - project code for each project item specified in Section B  
 <projid> - project identifier (from B-1)  
 <item> - project item number

Example: 614080\_pcf\_7-12\_1.txt

**Project Geodatabase:**

File Name: Project\_Geodatabase\_<project code>\_<projid>.gdb

<project code> - project code for each project item specified in Section B  
 <projid> - project identifier (from B-1)

Example: Project\_Geodatabase\_614080\_7dash12.gdb

**Flight Plan Feature Class:**

File Name: <area name>\_<project code>\_<projid>\_<item>

<area name> - name of forest or grassland  
 <project code> - project code for each project item specified in Section B  
 <projid> - project identifier (from B-1)  
 <item> - project item number

Example: tapash\_614080\_7dash12\_1

**Image Footprint Feature Class:**

File Name: <footprint type>\_<project code>\_<spatial resolution>\_<spectral resolution>\_<radiometric resolution>\_<projid>\_<item>

<footprint type> - sensor footprint based upon level of processing. Must be uncorrected, georeferenced, or ortho  
 <project code> - project code for each project item specified in Section B  
 <spatial resolution> - ground sample distance in units as dictated by the contract  
 <spectral resolution> - number of bands  
 <radiometric resolution> - bit depth (either 8 or 16)  
 <projid> - project identifier (from B-1)  
 <item> - project item number

Example: georeferenced\_614080\_50\_4\_8\_4dash12\_1

## EXHIBIT 2 (Cont'd)

**Flight Line Feature Class:**

File Name: flight\_line\_<project code>\_<projid>\_<item>

<project code> - project code for each project item specified in Section B

<projid> - project identifier (from B-2)

<item> - project item number

Example: flight\_line\_614080\_7dash12\_1

**Photo Center Feature Class:**

File Name: photo\_center\_<project code>\_<projid>\_<item>

<project code> - project code for each project item specified in Section B

<projid> - project identifier (from B-2)

<item> - project item number

Example: photo\_center\_614080\_7dash12\_1

**Orthorectified Image Index Feature Class:**

File Name: ortho\_index\_<project code>\_<spatial resolution>\_<spectral resolution>\_<projid>\_<item>

<project code> - project code for each project item specified in Section B

<spatial resolution> - ground sample distance in units as dictated by the contract

<spectral resolution> - number of bands

<projid> - project identifier (from B-2)

<item> - project item number

Example: ortho\_index\_614080\_50\_4\_7dash12\_1

**Seamline Feature Class:**

File Name: seamlines\_<project code>\_<projid>\_<item>

<project code> - project code for each project item specified in Section B

<projid> - project identifier (from B-2)

<item> - project item number

Example: seamlines\_614080\_7dash12\_1

## EXHIBIT 2 (Cont'd)

**Stereo Block File:**

File Name: <project code>\_<bit>\_<spectral>\_<block no>.blk

<project code> - project code for each project item specified in Section B

<bit> - image bit depth (16b or 8b)

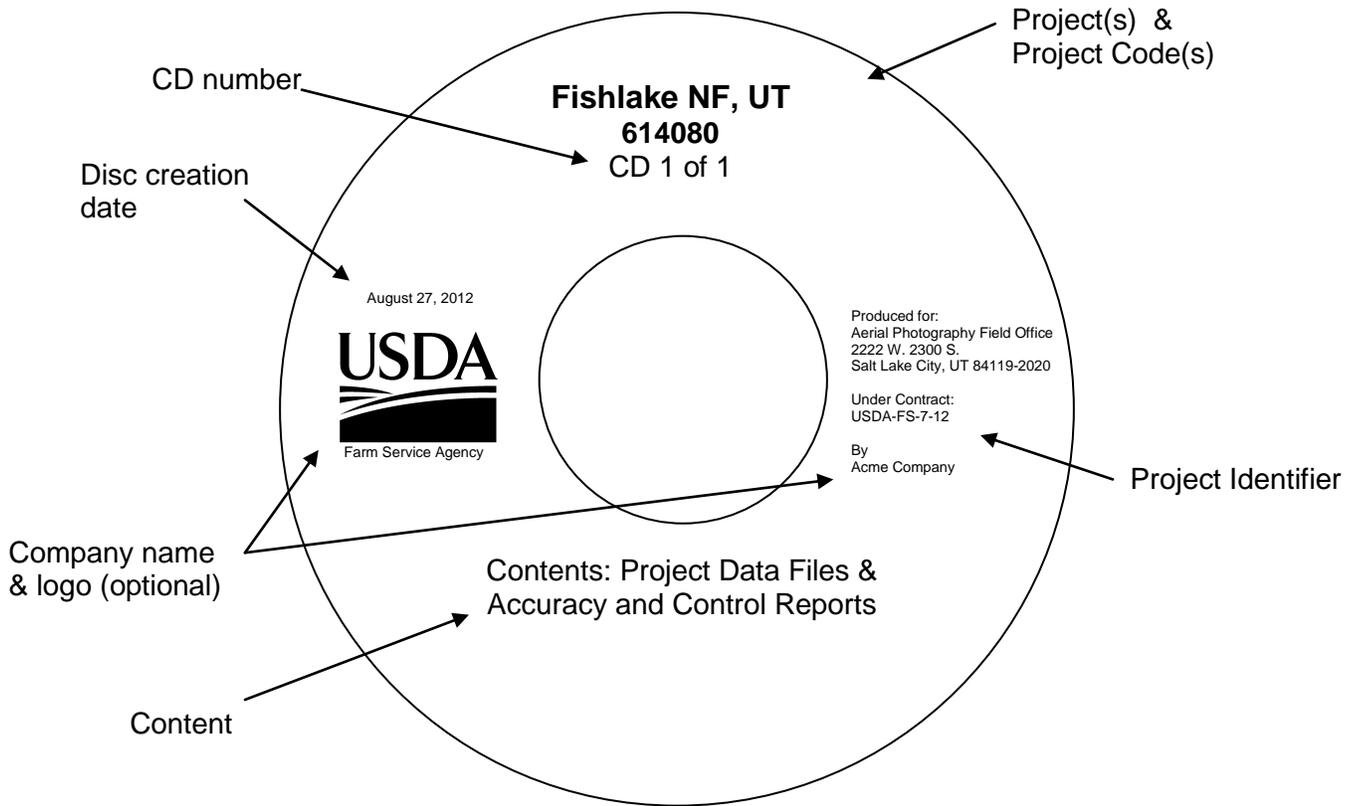
<spectral> - spectral resolution; m = multispectral; p = panchromatic

<block no> - consecutively numbered value for each image bit depth  
(2 characters padded with leading zero)

Example: 614080\_16b\_01.blk through 614080\_16b\_12.blk  
614080\_8b\_01.blk through 614080\_8b\_12.blk  
614080\_16bp\_01.blk

EXHIBIT 3  
Figure 1

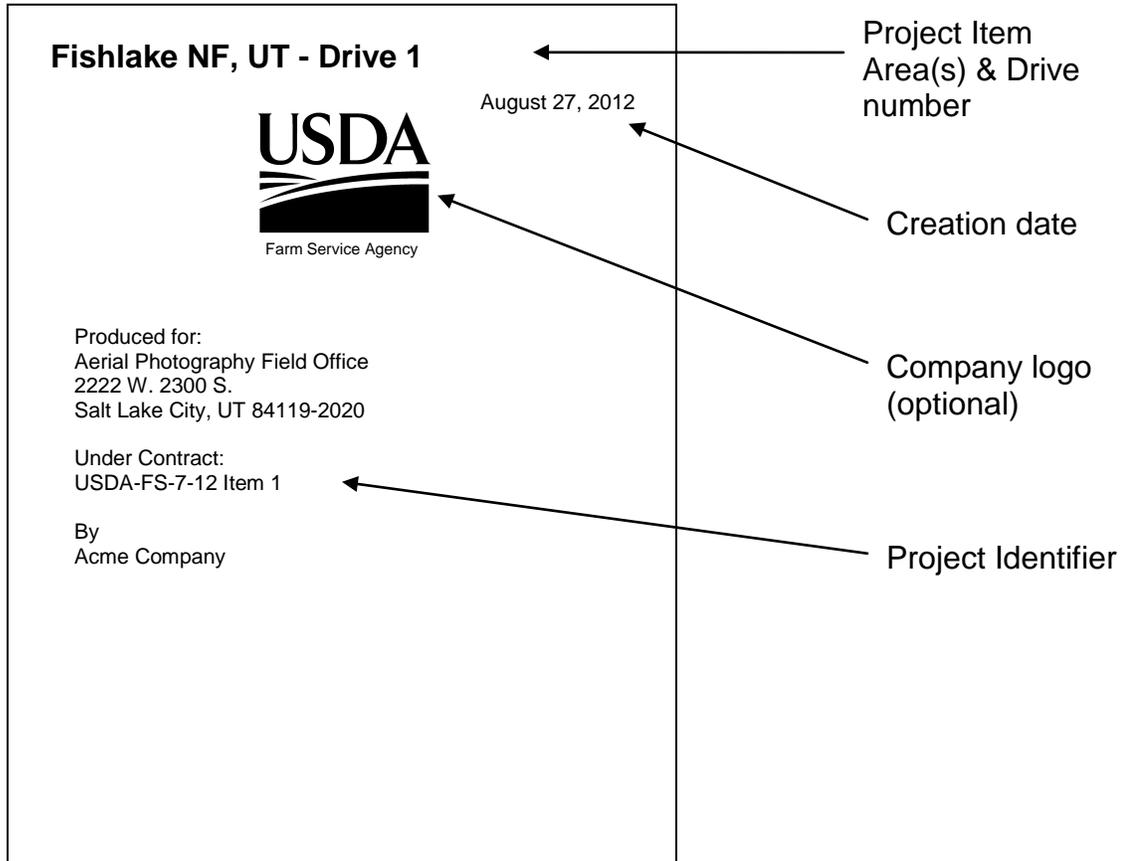
CD/DVD Labeling Requirements



ELEMENT	EXAMPLE
CD Number	CD 1 of 1
Company name & logo	Acme Company
Content	Project Data Files & Accuracy and Control Reports
Project Identifier	FS-7-12-1
Creation date	August 27, 2012
Project	Fishlake NF, UT
Project Code	614080

**EXHIBIT 3**  
**Figure 2**

Hard Drive Labeling Requirements



ELEMENT	EXAMPLE
Company name & logo	Acme Company
Project Identifier	USDA-FS-7-12-1
Creation date	August 27, 2012
Project item area & drive number	Fishlake NF, UT – Hard Drive 1

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

## EXHIBIT 4

PROGRESS REPORT CONVENTIONSyntax:

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

BODY ITEMS: body item [CRLF]

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.

## EXHIBIT 4 (CON'T)

PROGRESS REPORT CONVENTION**Sample:**

CONTRACTOR: Acme Photography  
CONTRACT: 7-12  
ITEM: 1  
DATE: 20120827

64.00002,-144.18751,A  
64.04166,-144.18750,A  
64.08332,-144.18752,A  
64.12501,-144.18751,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 (CRLF)(ASCII 13 and 10).
- 7) Body items can only contain one data item per line and must be terminated by a carriage-return/line-feed.
- 8) Project Identifier must be sent without prefix (i.e., FS-7-12 should be sent as 7-12).
- 9) Date must be transmitted as YYYYMMDD.
- 10) No e-mail attachments.

EXHIBIT 5

QUARTER QUAD NUMBERING LOGIC

112° 00' 00"  
34° 00' 00" •

01	02	03	04	05	06	07	08
09	10	11	12	13	14	15	16
17	18	19	20	21	22	23	24
25	26	27	28	29	30	31	32
33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48
49	50	51	52	53	54	55	56
57	58	59	60	61	62	63	64

• 33° 00' 00"  
111° 00' 00"

NW	NE
SW	SE

The ID for this QQ would be:  
3311162\_ne

Each Block (ie: A3) is a full Quad within the 1 degree grid; it is further subdivided into 4 quarter-quads, i.e. 3311162\_ne

Where:

Latitude: Identified by 2 digit numerical value of a 1 degree block.

Longitude: Identified by 3 digit numerical value of a 1 degree block, including a leading "0" as needed.

Quadrangle Number: Identified by grid number (01, 02, 03, ... 63, 64).

Quarter Quadrangle Location: Identified by grid letters (nw, ne, sw, se)

## EXHIBIT 6

WD 95-0222 (Rev.-32) was first posted on www.wdol.gov on 06/17/2011

Aerial Photographers/Seeding/Spraying

\*\*\*\*\*

REGISTER OF WAGE DETERMINATIONS UNDER	U.S. DEPARTMENT OF LABOR
THE SERVICE CONTRACT ACT	EMPLOYMENT STANDARDS ADMINISTRATION
By direction of the Secretary of Labor	WAGE AND HOUR DIVISION
	WASHINGTON, D.C. 20210

Diane C. Koplewski	Division of Wage	Wage Determination No: 1995-0222
Director	Determinations	Revision No: 32
		Date Of Revision: 06/13/2011

-----  
 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	FOOTNOTE	RATE
31010 - Airplane Pilot		25.27
(not set) - First Officer (Co-Pilot)		23.01
(not set) - Aerial Photographer		12.63

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: \$3.59 per hour or \$143.60 per week or \$622.27 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): \$1.47 per hour, or \$58.80 per week, or \$254.80 per month hour for all employees on whose behalf the contractor provides health care

**EXHIBIT 6 (Con't)**

benefits 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 \$3.59 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 ordnance, 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 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 links 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)

## EXHIBIT 6 (Con't)

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.

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

---

**EXHIBIT 6 (Con't)**

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 7

GLOSSARY AND DEFINITIONS

Acquisition Period: The calendar period in which the project item area imagery is required to be acquired.

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 who has the responsibility of providing technical information such as site ground and weather conditions on a contract.

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

Direct Digital Imagery: Vertical, high resolution imagery directly captured using a digital sensor. Either airborne or space-borne systems.

Exposure Stations: Pre-determined locations where photo centers of individual frames are to be exposed.

Georeferenced: Registering data with correct real world coordinates. Defining location using map coordinates and assignment of a known reference system, which allows data to be viewed, queried, and analyzed with other geographic data.

Ground Sample Distance: The ground sample distance is the distance on the ground represented by each pixel in the x and y components.

Original Imagery/Photography: All aerial imagery/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 Area: An area or areas described in the Schedule for which an award shall be made to one offeror.

Reflight Photography: Photography reflown to replace original imagery/photography rejected by USDA.

Remake Materials: Any contract materials ordered remade by USDA.

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

Uncorrected: No radiometric corrections or enhancements.

## EXHIBIT 7 (Cont'd)

FILE EXTENSIONS

.ads: ADS header (text) file, with pointers to .tif segments (for scanning sensors).

.aux: Stands for "auxiliary file." A file that accompanies the raster in the same location and stores any auxiliary information that cannot be stored in the raster file itself, including statistical information for the raster data set. It can also store the color map, histogram or table, coordinate system, transformation, and projection information.

.blk: Stands for "block file." A term used to describe and characterize all of the information associated with a photogrammetric mapping project, such as projection, spheroid, and datum; imagery; camera or sensor model information; GCPs; and geometric relationship between imagery and the ground. A block file is a binary file.

.gdb: Stands for "geodatabase." A geodatabase is a collection of geographic datasets of various types used in ArcGIS and managed in either a file folder or a relational database.

.ecw: Stands for enhanced compression wavelet. An ERDAS ER Mapper lossless compressed file format specifically designed for geospatial imagery.

.hist: Stands for "histogram." XML file containing histogram of imagery.

.ige: Large Raster Spill File. One of two ERDAS IMAGINE files created when an image requiring more than 4GB of disk space is created. It contains the actual image data in a separate non-HFA file format (normally with the extension .ige).

.img: Stands for "image file." An ERDAS IMAGINE file used to store raster data, including file information, ground control points, sensor information, layer information, attribute data, statistics, map information, projection information, pyramid layers, data file values, compression, and block size. This file uses Hierarchal File Format (HFA).

.odf: File that contains absolute orientation data for every image.

.odf.adj: File that contains adjusted (more accurate) absolute orientation data than what is contained in the .odf data.

.prj: Stands for "project file." A SOCET SET file containing the information required to restore the current state of a work. All necessary files, settings, and preferences are stored in the project file.

.rrd: Stands for "reduced resolution dataset." A file containing pyramids created for a raster dataset.

.sup: Stands for "support file." Generally a SOCET SET file containing photogrammetric metadata associated with an image in a project file.

.tif: Stands for "tagged image file." High-quality graphics format often used for storing images with many colors, such as digital photos; short for "TIFF;" includes support for layers and multiple pages.

## EXHIBIT 8

FLIGHT LINE AND EXPOSURE NUMBERING

**Flight Line:** The Contractor shall logically number the flight lines in a consistent manner:

North-South oriented flights: Begin with flight line number 0001, for the western most flight line, and numbering each flight line consecutively moving east through the project (Contractor may choose other techniques for numbering flight lines based on specific project layouts).

East-West oriented flights: Begin with the most northern most flight line.

Flight line numbers: shall start at 0001 and not have any breaks in the consecutive numbering.

Imagery that is duplicated within a flight line due to flight breaks or datum breaks, or is being resubmitted to the Government due to reflights:

Flight breaks and reflights: shall use the original flight line number but shall be padded with a preceding number in the first digit position (consecutively numbered for each flight line). For example:

- (1) If flight line 0014 required a break due to clouds in the original flight, or a datum break, the new flight with overlapping exposures and continuing exposures, would be numbered 1014.
- (2) If flight line 0015 has a reflight, the first reflight would be numbered 1015. Subsequent breaks and reflights in the same flight line would be numbered in sequence (i.e., 2015, 3015, etc.) and would be limited to the nine available numbers as the leading digit.
- (3) Multiple flight breaks and reflights in a single flight line may share the same leading digit if they do not overlap.

**Exposure Number:** The contractor shall consecutively number exposures starting at 0001 at the northern end of each North-South flight line (at the western end for East-West flights) and continue in sequence through the last exposure. The exposure number shall restart at 0001 for each flight line.

Imagery that has flight breaks or is being resubmitted to the Government due to reflights: shall keep the originally planned exposure number. For example:

- (1) If exposure 0006 was the last exposure before a break on flight line 0014, the overlapping exposure would be numbered the same 0006 preceded by a “padded” flight line number, for a combined number of 1014-0006
- (2) If exposure 0050 on flight line 0015 has a reflight, the reflight exposures (minimum 3 exps.) would be numbered with identical exposure numbers, preceded by the “padded” flight line number, for a combined number of 1015-0050.

## EXHIBIT 8 (Continued)

FLIGHT LINE AND EXPOSURE NUMBERING

See below for examples of numbering methods for this project.

FLIGHT BREAK:

Line No.		
0014		
Exp. No.		
0001		
0002		
0003		
Line No.		
0004		1014
Exp. No.		
0005		0005
- flight break -		
0006		0006
0007		
0008		
0009		

REFLIGHT:

Line No.		
0015		
Exp. No.		
0045		
0046		
0047		Reflight
Line No.		
0048		1015
Exp. No.		
0049		0049
0050		0050
0051		0051
0052		0052
0053		0053

# **AERIAL PHOTOGRAPHY FIELD OFFICE (APFO) SPECIFICATION FOR DIGITAL CAMERA BASED ACQUISITION**

(Dated February 1, 2012 – Modified for USFS Resource Imagery March 26, 2012)

## **1.0 INTRODUCTION AND BACKGROUND**

The U.S. Federal Government has not established an independent government evaluation and calibration policy for digital cameras since sensor technology is still rather new. Until a policy is developed and implemented, the U.S. Department of Agriculture (USDA), Farm Service Agency (FSA) has proceeded to validate the quality and capabilities of current digital cameras by obtaining relevant information from camera manufacturers, data providers, and other government agencies and organizations. The following specifications and requirements have been developed to ensure that any digital camera proposed for use on USDA contracts meets minimum requirements to provide the highest quality digital imagery products.

## **2.0 DIGITAL CAMERA SPECIFICATIONS AND REQUIREMENTS**

This document covers camera specifications and requirements for any direct-digital imagery acquisition under contract to APFO. Cameras for acquiring precise vertical digital imagery are required to be tested and calibrated. Cameras proposed for use must be of comparable, or better, precision and quality as traditional film-based stereoscopic mapping cameras. Imagery captured with digital cameras must also be compatible with analytical mensuration procedures used in photogrammetric surveys and in preparing accurate orthophotography. Documentation and sample imagery will be reviewed and verified by the Government before approval is granted. Only approved digital cameras shall be used on contracts administered by APFO.

## **3.0 GENERAL REQUIREMENTS**

Digital cameras must be tested and calibrated with manufacturer certification documentation. The camera must be geometrically stable and suitable for use in precise, high-accuracy photogrammetric orthoimagery applications. All delivered imagery shall be acquired and processed in such a way as to eliminate or minimize pixel or band offset or misalignment between bands. The camera shall provide the following:

### **3.1 Spatial Resolution**

The camera shall provide the spatial resolution and field of view necessary to meet the ground sample distance (GSD) requirement as specified in the contract.

### **3.2 Image Fusion**

Pan sharpening will be permitted to achieve the necessary spatial resolution requirements. The multi-spectral bands may be used at a ratio no greater than 1:5 (multi-spectral to panchromatic) to achieve the required spatial resolution.

### 3.3 Radiometric Resolution and Accuracy

The camera's sensor shall capture and record a minimum of 12-bits of image information per color channel. If more than one lens and more than one shutter are used in the camera, the difference in radiometric values between two panchromatic or two multi-spectral sensors shall be less than  $\pm 5\%$ . For example, a 12-bit image shall not have more than  $\pm 205$  difference in gray values.

### 3.4 Spectral Resolution

The camera shall capture, as a minimum, natural color (approximately 440 – 850 nm) and near infrared color (approximately 780 – 850 nm) channel data simultaneously or near simultaneously using a single camera (near simultaneously is defined as less than 500 milliseconds). Additional multi-spectral bands may be collected with a secondary or auxiliary camera and/or system.

### 3.5 Camera Operation

The digital camera and its mount shall be checked for proper installation prior to each mission. An automatic exposure control device is permitted, but a manual override capability is required for some types of terrain to achieve proper coverage and exposure. The camera mount shall be regularly serviced and maintained and shall be insulated against aircraft vibration.

### 3.6 Camera Maintenance

The contractor shall perform all maintenance in accordance with the manufacturers recommended and established procedures. The contractor shall maintain a complete history of all maintenance done to the camera system and have it available for Government inspection. The contractor shall provide certification that the system has been maintained, preventive maintenance and calibration performed, to the manufacturers requirements.

### 3.7 System Malfunctions

The contracting officer shall be notified of all camera malfunctions within 72 hours with a written report of the malfunction. A malfunction is defined as a failure in any element or process of the camera that causes an interruption of the normal operations of the camera system (camera system is defined as the camera and any key components, such as camera mount, airborne global positioning system, and on-board data storage). All malfunctions or failures of global positioning systems or inertial measurement unit systems shall also be reported directly to the contracting officer.

#### 4.0 DIGITAL CAMERA APPROVAL REQUIREMENTS

All digital cameras must be approved by the Contracting Officer before acquiring imagery under any APFO contract. When requesting approval, the Contractor shall submit, or have on file with APFO, a report of calibration (see Paragraph 4.1), sample digital imagery (see Paragraph 4.2), and camera documentation (see Paragraph 4.3).

##### 4.1 Calibration Reports

Calibration reports for each digital camera proposed for use shall be submitted to the contracting officer with the contractor's proposal and prior to project imagery acquisition if the digital camera is removed and remounted. The contractor shall follow manufacturer's specifications for appropriate calibration and recalibration. The calibration reports shall address the geometric performance of the camera, and at a minimum, include:

- (a) Date of report
- (b) The name of the person or company performing the calibration
- (c) The methodology and procedures used for calibration
- (d) Final calibration parameters, such as calibrated focal length, lens distortion values, radiometric calibration parameters, and principal point location.

NOTE: The government recognizes that individual calibration reports, procedures, and parameters may be unique to a certain manufacturer since equipment and systems vary from manufacturer to manufacturer.

##### 4.2 Sample Imagery Requirements

The Contractor shall acquire and submit with their proposal, sample images from the digital camera proposed for use. The sample imagery shall provide the following minimum characteristics:

- (a) Display the same GSD resolution required in the solicitation.
- (b) Represent the type of terrain (agriculture, cropland, forest, etc.) that is similar to the proposed project area.
- (c) Re-sampled and submitted as an 8-bits per band image (unless the solicitation requires only 16-bit per band image delivery, in which case the sample imagery shall be submitted as a 16-bits per band image).
- (c) If ortho-rectification is required under the proposed solicitation, the sample image shall be ortho-rectified with the projection specified in the solicitation (for example, North American Datum 1983 (NAD83) and UTM Zone 12).
- (d) Sample shall be produced and submitted in the footprint and file format specified in the solicitation (for example, DOQQ formatted, GeoTIFF image).
- (e) The sample imagery shall fit on one standard CD or DVD. Delivered media will become part of the official Government contract file and will not be returned.

#### 4.3 Camera Documentation Requirements

The Contractor shall provide with their proposal detailed documentation of the digital camera proposed for use. Documentation may include brochures, technical specifications, marketing material, manufacturer's user manuals, or other descriptive literature. The documentation shall contain at a minimum the following information:

- (a) General overview information
- (b) Product configuration description
- (c) Camera component description
- (d) Technical specifications
- (e) Computer management and storage systems
- (f) Image acquisition and processing workflow

.

## **AERIAL PHOTOGRAPHY FIELD OFFICE (APFO) USDA DIGITAL IMAGERY QUALITY SPECIFICATION**

(Dated February 1, 2012 – Modified for USFS Resource Imagery March 26, 2012)

### 1.0 SCOPE

This document establishes the image quality criteria to be used in the production of digital imagery products for all contracts issued by the United States Department of Agriculture's (USDA) Aerial Photography Field Office.

### 2.0 APPLICABLE DOCUMENTS

In the event of conflict between the contents of this specification and the documents referenced herein, the contents of this specification shall take precedence.

- 2.1 National Agriculture Imagery Program (NAIP) Suggested Best Practices – Final Report, dated Feb 1, 2007 (ITT Space Systems Division)

### 3.0 GENERAL REQUIREMENTS

USDA uses imagery for various programs including, but not limited to forest management, agriculture land use analysis, natural resource inventory, and extraction of data by means of photogrammetric interpretation. The complex nature and need for consistent imagery requires adherence to exact format and content of this specification.

- 3.1 Image blemishes, scratches and artifacts. Imagery shall be free of blemishes, scratches, and artifacts that obscure ground feature detail. The following table defines the maximum acceptable limits for blemishes, scratches, and artifacts. Clusters of blemishes, scratches, and artifacts that do not individually meet these criteria may be considered unacceptable.

<b>ACCEPTABLE, IMAGE BLEMISHES, SCRATCHED, AND ARTIFACTS</b>	
1 pixel wide	100 pixels in length
2 pixels wide	60 pixels in length
3 pixels wide	20 pixels in length
4 – 12 pixels wide	12 pixels in length

- 3.2 Band-to-Band Registration Accuracy. Misregistration between any color bands shall not exceed 1 pixel.

- 3.3 Original Image Resolution. The original image, original scan, or original capture used to create the imagery shall not be resampled from the original image resolution greater or less than the following numbers in order to meet the Ground Sample Distance (GSD) specified in the contract:

GROUND SAMPLE DISTANCE (GSD)	ORIGINAL IMAGE RESOLUTION	
	MAXIMUM (meters)	MINIMUM (meters)
0.3-meter	0.15	0.32
0.5-meter	0.25	0.53
1-meter	0.50	1.05

#### 4.0 UNCORRECTED IMAGERY

Uncorrected imagery is defined as imagery that has been minimally processed before exporting to a non-camera specific file format, such as a TIFF. Uncorrected imagery is the closest “match” to a traditional film negative that the direct-digital camera can provide without having the end-user employ special and/or non-standard software.

- 4.1 Non-image data. Imagery shall only use a pixel digital number (DN) of zero (0) for non-data values.
- 4.2 Image Quality. The Contractor shall not make any radiometric enhancements, such as gamma correction, histogram stretching, dodging, or other Look Up Table (LUT) adjustments, to the acquired imagery. The imagery shall not contain any borders, artifacts, or other non-image items.

#### 5.0 COLOR CORRECTED IMAGERY

Imagery required to be color-corrected shall be adjusted so that the image matches the ground at the time of exposure. Adjustments shall include, but not limited to, any dodging, gamma correction, histogram stretching, brightness adjustments, and/or color balancing. The files shall not contain any borders, artifacts, or other non-image items.

- 5.1 Non-image data. Imagery shall only use a pixel digital number (DN) of zero (0) for non-data values.
- 5.2 Natural Color Image Quality.
- (a) Clipping. Imagery shall have a tonal range that prevents the clipping of highlight or shadow detail from the image. When calculated against the luminosity histogram, the cumulative pixel count between the first and last five histogram bin

values (5 and 250 respectively for 8-bit depth) shall not be less than 98.0%, with a preferred value greater than 99%.

- (b) **Contrast.** When calculated against the luminosity histogram, the difference between the histogram digital number (DN) value that contains 99.0% of the cumulative pixel count and the DN value that contains 1.0% shall be greater than  $\pm 59\%$  of the bit depth,  $\pm 4\%$  (aim point of 150,  $\pm 10$  for 8-bit depth). If the cumulative pixel count percentage falls between two histogram bin values, the closest value shall be used. For example, if an 8-bit image has a luminosity DN value 222 contains 99% of the cumulative pixel count and DN value 44 contains 1% count, therefore the difference is 178.

BIT DEPTH	DN DIFFERENCE		
	TARGET	MINIMUM	MAXIUMUM
8-bit	150	140	160
16-bit	38,550	35,930	41,170

- (c) **Brightness.** Imagery shall have a mean pixel count within  $\pm 7.5\%$  of the middle DN value allowed for the bit depth. For example, an 8-bit depth image must have the histogram mean value between 108 and 147.

BIT DEPTH	MEAN DN	
	MINIMUM	MAXIUMUM
8-bit	108	147
16-bit	27,853	37,683

- (d) **Color Balance.** Imagery should have a neutral tonal range without the dominance of any individual color. The difference between the minimum and maximum DN value in a RGB triplet of any nearly neutral objects within the image shall be less than 5.

5.2 **Color infrared Imagery.** All color infrared imagery shall have proper contrast to allow highlight and shadow detail.

5.3 **Multispectral Imagery.** Multispectral Imagery shall be radiometrically processed such that the natural color bands (RGB) meet the quality requirements in paragraph 5.1.

## 6.0 ORTHORECTIFIED IMAGERY

All orthorectified imagery shall be color-corrected in accordance with paragraph 5.0.

6.1 **Geographic Extent.** Imagery shall cover the entire image area, including the required minimum buffer on all four sides. Extents shall be computed by projecting the geographic corners and side midpoints to the appropriate projection, then adding the buffer on each side of the resulting minimum bounding rectangle.

- 6.2 Specular reflections. Specular reflections in the imagery should be minimized, especially in agriculture areas, by patching the area using “chips” from different imagery but shall be from the same type of camera and must be from the same acquisition season. Any chips used in the imagery shall not have more than  $\pm 3$  pixels offset or the specified horizontal accuracy, whichever is the lesser distance, between the chip and principal image. Any chips used shall be radiometrically balanced in accordance with paragraph 6.3(a).
- 6.3 Image Mosaicking. Imagery may be created using multiple image segments from the same acquisition collection to produce the final product.
- (a) Radiometric Balance. When a mosaic is made from two or more image segments, the brightness and color values between the image segments will be adjusted to match that of neighboring image segments. The join lines between the overlapping image segments will be chosen to minimize tonal variations. Localized adjustment of the brightness and color values will be done to reduce radiometric differences between join areas.
- 6.4 Spatial. All orthoimagery shall meet the horizontal accuracy requirement of the specified project.

## 7.0 DEFINITIONS

Chip – Each separate piece of a mosaicked image that contributes to the final image.

Clipping – The presence of pixels exhibiting the minimum or maximum digital number in an image’s dynamic range.

Digital Number – The value (0-255 for an 8-bit image) that depicts the pixel radiance for that color band.

Dodging – Manipulating the intensity of part of a photograph by selectively shading or masking.

Resample – Interpolation of pixel values based upon neighboring pixel values.

Uncorrected Imagery – Imagery that has been minimally processed, including no radiometric enhancements, such as stretching, dodging, or other Look Up Table (LUT) adjustments, to the acquired imagery.

## ATTACHMENT C

### USDA DIGITAL FILE FORMAT SPECIFICATION

Dated April 16, 2010 - Modified for USFS Resource Imagery March 26, 2012

#### 1.0 SCOPE

This document establishes the file format criteria to be used in the production of digital imagery for all contracts issued by the Aerial Photography Field Office.

#### 2.0 APPLICABLE DOCUMENTS

In the event of conflict between the contents of this specification and the documents referenced herein, the contents of this specification shall take precedence.

- 2.1 TIFF Specification Revision, 6 dated June 3, 1992 (Adobe Systems Inc.). The Tagged Image File Format (TIFF) is a copyrighted standard of Adobe Systems, Inc.
- 2.2 GeoTIFF Revision 1.0 Specification, dated December 28, 2000 (Version 1.8.2). The GeoTIFF Format Specification is a public domain extension of TIFF that provides a robust and flexible method of storing georeferencing information in a TIFF file.
- 2.3 JPEG 2000 Image Coding System, ISO/IEC 15444-1:2004 (JPEG Committee)

#### 3.0 TIFF REQUIREMENTS

Imagery shall be readable by older applications that assume TIFF 5.0 or an earlier version of the specification. Files that use designated “Extended TIFF 6.0 file” features, as defined in Section 2 of the TIFF Specification, shall not be used. This includes, but not limited to, any of the major new extensions such as “tiled images.” Features designated as “not recommended for general data interchange” are considered extensions to the baseline TIFF 6.0 specification and shall not be used. List 1, Tag Listings, List 2 and “tiffinfo” Output shows an example of a TIFF tag listing.

- 3.1 All public tags shall conform to the TIFF Specification and shall not be modified outside of the parameters given in the specification. Use of tag numbers not specified in the TIFF Specification for either Grayscale or RGB full color images, depending on color band of the imagery, is not permitted. As a minimum, the TIFF tags listed in Table 1, Required TIFF Tags, shall be included when creating imagery under this specification.
- 3.2 Tags numbered 32,768 or higher, sometimes called private tags, are reserved and shall not be used unless listed in Table 2, Approved Private Tags. Enumeration constants numbered 32,768 or higher are reserved and shall not be used.
- 3.3 Tags numbered in the “reusable” 65,000-65,535 range shall not be used.

- 3.4 Imagery files shall be created using the little-endian byte order as specified in the TIFF Specification. Bytes 0-1 of the Image File Header must be “II” (4949.H).
- 3.5 Imagery files shall only have a single Image File Directory (IFD).
- 3.6 Tiled TIFF files are not allowed.

Table 1, Required TIFF Tags

TAG NAME	DESCRIPTION
ImageDescription tag (270.d, 10e.h)	The ImageDescription tag shall contain the project item name. For example, under this contract the tag will read: “USDA-FSA-APFO-U.S. Forest Service Resource Program”
DocumentName tag (269.d, 10d.h)	Unless otherwise specified in the contract, the DocumentName tag shall have the following form: <Quad Name> <Quadrant> <Quad id> where: <Quad Name> is the name of the quadrangle taken from the provided list of quarter quadrangles for a county. <Quadrant> Is the quadrant identifier for a quadrangle. <Quad id> is the “Usgsqdno” field taken from the provided list of quarter quadrangles for a county

Table 2, Approved Private Tags

TAG NAME	ID
ModelPixelScaleTag	33550 (SoftDesk)
ModelTransformationTag	34264 (JPL Carto Group)
INGR Packet Data Tag	33918 (Intergraph)
INCR Flag Registers	33919 (Intergraph)
IrasB Transformation Matrix	33920 (Intergraph)
UnUsed	33921 (Intergraph)
ModelTiepointTag	33922 (Intergraph)
GeoKeyDirectoryTag	34735 (SPOT)
GeoDoubleParamsTag	34736 (SPOT)
GeoAsciiParamsTag	34737 (SPOT)

#### 4.0 GeoTIFF REQUIREMENTS

Georeferenced tagged image format (GeoTIFF) imagery shall meet all requirements listed in paragraph 3.0, TIFF Requirements, and be produced in accordance with this specification, the GeoTIFF 1.0 Specification, and the baseline TIFF 6.0 Specification (stated in order of precedent). List 3, ListGeo Output shows an example of a GeoTIFF tag listing.

- 4.1 A GeoTIFF file is a TIFF 6.0 file, and inherits the file structure as described in the corresponding portion of the TIFF Specification. All GeoTIFF specific information is encoded in several additional reserved TIFF tags, and contains no private Image File Directories (IFD's), binary structures, or other private information invisible to standard TIFF readers.
- 4.2 The GeoTIFF 1.0 standard uses a MetaTag (GeoKey) approach to encode dozens of data elements into just six TIFF 6.0 tags. GeoKeys are structurally similar to TIFF 6.0 tags, but at one lower level of abstraction. As a minimum, the four tags listed in Table 3, Required GeoTIFF MetaTags, shall be included when creating imagery under this specification.
- 4.3 As a minimum, the TIFF tags listed in Table 1, Required TIFF Tags, and Table 2, Required GeoTIFF Specific Tags, shall be included when creating imagery under this specification.

Table 3, Required GeoTIFF Specific Tags

TAG NAME	DESCRIPTION
ModelPixelScaleTag (33550.d, 830e.h)	The X and Y values must be populated and be equal to the ground distance of one pixel.
ModelTiepointTag (33922.d, 8482.h)	This tag specifies the (X,Y) ground coordinates of the (0,0) image pixel, by convention in the upper left corner of the image. GeoTIFF 1.0 allows considerable flexibility in how an image is tied to the ground, but image data should be tied to the (0,0) pixel. The Z coordinate value should be set to 0. See section 2.6.1 of the GeoTIFF 1.0 standard.
GeoAsciiParamsTag (34737.d, 87b1.h) (required)	This tag is used to store all the ASCII-valued GeoKeys. See section 2.4 of the GeoTIFF 1.0 standard.
GeoKeyDirectoryTag (34735.d, 87af.h) (required)	This tag references all non-ASCII GeoKeys. All projection and datum information is stored in GeoKeys. See section 2.10.2.2 of this standard and section 2.4 of the GeoTIFF 1.0 standard.

Table 3, Required GeoTIFF MetaTags

TAG NAME	DESCRIPTION
GTModelTypeGeoKey (1024.d, 400.h) (required)	The required value is 1 (ModelTypeProjected).
GTRasterTypeGeoKey (1025.d, 401.h) (required)	<ul style="list-style-type: none"> <li>a. The required value is 1 (RasterPixelsArea) which is the default value.</li> <li>b. The "PixelsArea" raster grid space uses coordinates I and J, with (0,0) denoting the upper-left corner of the image, and increasing I to the right, increasing J down. The first pixel-value fills the square grid cell with the bounds top-left = (0,0), bottom-right = (1,1) and so on; by extension this one-by-one grid cell is also referred to as a pixel. An N by M pixel image covers an area with the mathematically defined bounds (0,0),(N,M).</li> <li>c. This raster space designates the upper-left corner of an image. The coordinate pair values for this location shall be "a whole number of pixels." Each value "must be integer multiple of the resolution" of the imagery. For a 1-meter resolution image this pair can be odd or even whole numbers, for a 2-meter resolution image this pair needs to even whole numbers.</li> <li>d. The desired result is to have "Exact Pixel Registration," meaning that pixels from multiple images line up exactly. This should not be confused with overlaps or gaps, but the cells have to fall on an even multiple of the cell width and height from one another, and adjacent images cannot have cells starting halfway, or partially into the cells of the original image</li> </ul>
ProjectedCSTypeGeoKey (3072.d, c00.h) (required)	This key contains a coded value for the projection, datum, and possibly plane coordinate zone. Legal values for this key are listed in section 6.3.3.1 of the GeoTIFF 1.0 standard.
PCSCitationGeoKey (3073.d, c01.h) (required)	<p>This is a free text field for describing the projection and datum. These fields shall describe the datum and projection using &lt;datum&gt;/&lt;projection&gt; format.</p> <p>For example: NAD83 / UTM zone 15N</p>

<p>GTCitationGeoKey (1026.d, 402.h) (required)</p>	<p>This is a free text field for providing a description of the imagery. The GeoKey contents shall be in the following form.</p> <p>a. &lt;project&gt; &lt;year&gt; &lt;n&gt;_&lt;lat&gt;&lt;lon&gt;&lt;quad&gt;_&lt;loc&gt;_&lt;xx&gt;_&lt;rr&gt;_&lt;yyyymmdd&gt;</p> <p>Where:</p> <p><u>project</u> – Project code  <u>year</u> - Program year (i.e., 2010).  <u>m</u> – Spectrap type (n=natural color, c=color infrared, or m=multispectral)  <u>lat</u> – Latitude, identified by 2 digit numerical value of a 1° block (including the leading “0” if needed).  <u>lon</u> – Longitude, identified by 3 digit numerical value of a 1° block (including the leading “0” if needed).  <u>quad</u> – Quadrangle location, identified by a 2 digit numerical value to identify the position in a one degree block.  <u>loc</u> – Quarter quadrangle location, identified by grid letters (nw,ne,sw,se).  <u>xx</u> – Two digit UTM zone.  <u>r</u> – Image resolution in centimeters  <u>yyyymmdd</u> – date of acquisition.</p> <p>b. Example:  6131202012m_3309403_nw_12_30_20120827</p>
<p>ProjLinearUnitsGeoKey (3076.d, c04.h) (required)</p>	<p>This key contains a coded value for the linear units used by the projection. Legal values for this key are listed in section 6.3.3.1 of the GeoTIFF 1.0 standard. Imagery shall use the code value of 9001 (“Linear_Meter”).</p>

## 5.0 LizardTech's MrSID<sup>®</sup> REQUIREMENTS

MrSID imagery shall be compressed and saved in Generation Three (MG3) format. When encoding the image, the following settings shall be applied:

- compression block size of 64
- both the transparency and background values set to an RGB value of 0,0,0 (black)
- use the “maximum zoom level” applicable to the input image, for example: - checking the “Use Maximum Zoom Levels for Image” button in the encoding options menu.

- (a) Compression Ratio. Compression ratio shall be 15:1 if no ratio is specified differently for the specified project. All CCM compression shall be at the same ratio and settings ("region of interest" compressed at a different ratio will not be accepted). All

compression shall be at the same ratio and settings ("region of interest" compressed at a different ratio will not be accepted).

- (b) Header Information. The image header shall contain correct Esri® compatible projection information for the mosaic.
- (c) Required Files. All standard MrSID® MG3 files generated by the LizardTech software (i.e., .sid, .sdw, and .txt) shall be included.
- (d) Configuration File. The Contractor shall provide the text file created when generating the CCM. The file shall use the same naming convention as the CCM but with a ".txt" extension.
- (e) Auxiliary File. The Contractor shall provide an ".aux" file containing Esri® projection information for each CCM. The auxiliary file shall contain the proper projection information for the mosaic and shall match the information in the CCM header. The file shall use the same naming convention as the CCM but with an ".aux" extension.

## 6.0 JPEG2000 REQUIREMENTS

JPEG2000 imagery shall be compressed and saved in the JPEG 2000 format with an unsigned, 8-bit depth. A target compression ratio shall be 1:15 if no ratio is specified in the individual contract. When encoding the image, the following settings shall be applied:

- Tiling: None
- Code blocks: 64
- Precincts: 256 x 256
- Strip height: 12
- Progression order: rpcl
- Quality layers: 8
- Packet length markers: Yes
- Filter: 9-7
- Tile length markers: No
- Transparency: Yes
- Background: Transparent, Black, White (stated in order of preference)

All compression shall be at the same ratio and settings ("region of interest" compressed at a different ratio will not be accepted).

## 7.0 DEFINITIONS

Band – A range of wavelengths of electromagnetic radiation. Also, image data gathered at this wavelength range.

Field – Refers only to the entire field, including the value, of the geokey (as defined in the TIFF Specification).

Image File Directory – Contains information about the image. There must be at least 1 IFD in a TIFF file and each IFD must have at least one entry.

Metadata – Description of the content, quality, condition, and other characteristics of the data.

Private tags – TIFF tags numbered 32,768 or higher. Private tags are not defined in the TIFF Specification.

Public tags – TIFF tags that are defined by the TIFF Specification.

Tag – Refers only to the identifying number portion of the geokey (as defined in the TIFF Specification).

List 1, Tag Listings

The following table summarizes the TIFF 6.0, GeoTIFF 1.0, and GeoKey requirements. The values in the table are consistent with the TIFF 6.0 and GeoTIFF 1.0 standards, but there are less options than are allowed by TIFF. Additional guidelines and requirements for the values of tags and keys are detailed in the body of this standard. Additional public tags and keys may be used at the data producer's option, providing they do not conflict with the required tags.

**TIFF tags required by baseline TIFF:**

<u>TagName</u>	<u>Decimal</u>	<u>Hex</u>	<u>Type</u>	<u>Value</u>
ImageWidth	256	100	SHORT or LONG	
ImageLength	257	101	SHORT or LONG	
BitsPerSample	258	102	SHORT	8,8,8,8
Compression	259	103	SHORT	1
PhotometricInterpretation	262	106	SHORT	2
Orientation	274	112	SHORT	1
StripOffsets	273	111	SHORT or LONG	
SamplesPerPixel	277	115	SHORT or LONG	3 or 4
RowsPerStrip	278	116	SHORT or LONG	1
StripByteCounts	279	117	SHORT or LONG	
ExtraSamples*	338	152	SHORT	0

\* Tag required only if SamplesPerPixel is greater than 3.

**TIFF tags defined by GeoTIFF:**

<u>TagName</u>	<u>Decimal</u>	<u>Hex</u>	<u>Type</u>	<u>Value</u>
ModelPixelScaleTag	33550	830E	DOUBLE	
ModelTiepointTag	33922	8482	DOUBLE	
GeoAsciiParamsTag	34737	87B1	ASCII	
GeoKeyDirectoryTag	34735	87AF	SHORT	

**GeoKeys defined by GeoTIFF and used by APFO:**

<u>TagName</u>	<u>Decimal</u>	<u>Hex</u>	<u>Type</u>	<u>Value</u>
GTModelTypeGeoKey	1024	400	6.3.1.1 code	1
GTRasterTypeGeoKey	1025	401	6.3.1.2 code	1
GTCitationGeoKey		1026	402	ASCII
ProjectedCSTypeGeoKey	3072	C00	6.3.3.1 code	
PCSCitationGeoKey	3073	C01	ASCII	
ProjLinearUnitsGeoKey	3076	C04	SHORT	

## List 2, “tiffinfo” Output

This listing is an output of the libtiff utility program “tiffinfo”.

```
TIFF Directory at offset 0x2370bc4
Image Width: 3247 Image Length: 3815
Resolution: 200, 200 (unitless)
Bits/Sample: 8
Compression Scheme: none
Photometric Interpretation: RGB color
Document Name: “Garvin NE 3309401:
Image Description: “USDA-FSA-APFO-U.S. Forest Service Resource Program”
Samples/Pixel: 3
Rows/Strip: 1
Planar Configuration: single image plane
```

## List 3, ListGeo Output – Orthorectified GeoTIFF

The following is an example of a GeoTIFF tag and GeoKey listing from an orthorectified GeoTIFF image. This listing is the output of the libgeotiff utility program “listgeo”. The projection information below the line “End\_Of\_Geotiff” is implied by the standard projection and is not stored explicitly in the data file. The descriptions are retrieved from libgeotiff lookup tables in the listgeo application.

```
Geotiff_Information:
Version: 1
Key_Revision: 1.0
Tagged_Information:
ModelTiepointTag (2,3):
  0      0      0
 337962  3763838  0
ModelPixelScaleTag (1,3):
  2      2      1
End_Of_Tags.
Keyed_Information:
GTModelTypeGeoKey (Short,1): ModelTypeProjected
GTRasterTypeGeoKey (Short,1): RasterPixelIsArea
GTCitationGeoKey (Ascii,45): "6131202012m_3311162_nw_12_2_20120714"
ProjectedCSTypeGeoKey (Short,1): PCS_NAD83_UTM_zone_12N
PCSCitationGeoKey (Ascii,21): "NAD83 / UTM zone 12N"
ProjLinearUnitsGeoKey (Short,1): Linear_Meter
End_Of_Keys.
End_Of_Geotiff.
```

PCS = 26915 (name unknown)

Projection = 16015 ()  
 Projection Method: CT\_TransverseMercator  
 ProjNatOriginLatGeoKey: 0.000000 ( 0d 0' 0.00"N)  
 ProjNatOriginLongGeoKey: -93.000000 ( 93d 0' 0.00"W)  
 ProjScaleAtNatOriginGeoKey: 0.999600  
 ProjFalseEastingGeoKey: 500000.000000  
 ProjFalseNorthingGeoKey: 0.000000  
 GCS: 4269/NAD83  
 Datum: 6269/North American Datum 1983  
 Ellipsoid: 7019/GRS 1980 (6378137.00,6356752.31)  
 Prime Meridian: 8901/Greenwich (0.000000/ 0d 0' 0.00"E)  
 Projection Linear Units: 9001/metre (1.000000m)

Corner Coordinates:

Upper Left ( 337962.000,3763838.000) ( 94d45'16.56"W, 34d 0' 9.55"N)  
 Lower Left ( 337962.000,3756208.000) ( 94d45'11.47"W, 33d56' 1.94"N)  
 Upper Right ( 344456.000,3763838.000) ( 94d41' 3.51"W, 34d 0'13.09"N)  
 Lower Right ( 344456.000,3756208.000) ( 94d40'58.63"W, 33d56' 5.47"N)  
 Center ( 341209.000,3760023.000) ( 94d43' 7.54"W, 33d58' 7.53"N)

List 4, ListGeo Output – Non-Orthorectified, Georeferenced, GeoTIFF

The following is an example of a GeoTIFF tag and GeoKey listing from a non-orthorectified, georeferenced GeoTIFF image. This listing is the output of the libgeotiff utility program “listgeo”. The projection information below the line “End\_Of\_Geotiff” is implied by the standard projection and is not stored explicitly in the data file. The descriptions are retrieved from libgeotiff lookup tables in the listgeo application.

Geotiff\_Information:

Version: 1

Key\_Revision: 1.0

Tagged\_Information:

ModelTransformationTag (4,4):

-0.00290358977	0.260146801	0	521253.412
0.260078624	0.00303118896	0	4921452.99
0	0	1	0
0	0	0	1

End\_Of\_Tags.

Keyed\_Information:

GTModelTypeGeoKey (Short,1): ModelTypeProjected

GTRasterTypeGeoKey (Short,1): RasterPixelIsArea

GeogGeodeticDatumGeoKey (Short,1): Datum\_North\_American\_Datum\_1983

GeogEllipsoidGeoKey (Short,1): Ellipse\_GRS\_1980

ProjectedCSTypeGeoKey (Short,1): PCS\_NAD83\_UTM\_zone\_13N

PCSCitationGeoKey (Ascii,58): "Universal Transverse Mercator; North American 1983; GRS80"

ProjLinearUnitsGeoKey (Short,1): Linear\_Meter

ProjNatOriginLongGeoKey (Double,1): -105  
ProjNatOriginLatGeoKey (Double,1): 0  
ProjFalseEastingGeoKey (Double,1): 500000  
ProjFalseNorthingGeoKey (Double,1): 0  
ProjScaleAtNatOriginGeoKey (Double,1): 0.9996  
End\_Of\_Keys.  
End\_Of\_Geotiff.

PCS = 26913 (NAD83 / UTM zone 13N)  
Projection = 16013 (UTM zone 13N)  
Projection Method: CT\_TransverseMercator  
ProjNatOriginLatGeoKey: 0.000000 ( 0d 0' 0.00"N)  
ProjNatOriginLongGeoKey: -105.000000 (105d 0' 0.00"W)  
ProjScaleAtNatOriginGeoKey: 0.999600  
ProjFalseEastingGeoKey: 500000.000000 m  
ProjFalseNorthingGeoKey: 0.000000 m  
GCS: 4269/NAD83  
Datum: 6269/North American Datum 1983  
Ellipsoid: 7019/GRS 1980 (6378137.00,6356752.31)  
Prime Meridian: 8901/Greenwich (0.000000/ 0d 0' 0.00"E)  
Projection Linear Units: 9001/metre (1.000000m)

Corner Coordinates:

Upper Left ( 521253.412, 4921452.989) (104d43'58.44"W, 44d26'45.84"N)  
Lower Left ( 524849.681, 4921494.892) (104d41'15.73"W, 44d26'46.78"N)  
Upper Right ( 521231.112, 4923450.393) (104d43'59.15"W, 44d27'50.57"N)  
Lower Right ( 524827.382, 4923492.296) (104d41'16.39"W, 44d27'51.52"N)  
Center ( 523040.397, 4922472.643) (104d42'37.43"W, 44d27'18.69"N)

**ATTACHMENT D  
CLAUSES AND PROVISIONS**

**52.252-1 -- Solicitation Provisions Incorporated by Reference (Feb 1998)**

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/these address(es):

[www.arnet.gov](http://www.arnet.gov)

**52.252-2 -- Clauses Incorporated by Reference (Feb 1998)**

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/these address(es): [www.arnet.gov](http://www.arnet.gov)

	<b>CLAUSE</b>	<b>PROVISION/CLAUSE TITLE</b>	<b>DATE</b>
AGAR	<b>452.204-70</b>	INQUIRIES	Feb-88
FAR	<b>52.202-1</b>	DEFINITIONS	Jul-04
FAR	<b>52.203-10</b>	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY	Jan-97
FAR	<b>52.203-3</b>	GRATUITIES	Apr-84
FAR	<b>52.203-5</b>	COVENANT AGAINST CONTINGENT FEES	Apr-84
FAR	<b>52.203-6</b>	RESTRICTIONS ON SUBCONTRACTOR SALES TO THE GOVERNMENT	Sep-06
FAR	<b>52.203-7</b>	ANTI-KICKBACK PROCEDURES	Oct-10
FAR	<b>52.203-8</b>	CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY	Jan-97
FAR	<b>52.204-7</b>	CENTRAL CONTRACTOR REGISTRATION	Feb-12
FAR	<b>52.204-10</b>	REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBCONTRACT AWARDS	Jul-10
FAR	<b>52.204-4</b>	PRINTED OR COPIED DOUBLE-SIDED ON RECYCLED PAPER	May-11
FAR	<b>52.209-10</b>	PROHIBITION ON CONTRACTING WITH INVERTED DOMESTIC CORPORATIONS	May-11
FAR	<b>52.209-6</b>	PROTECTING THE GOVERNMENTS INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT	Dec-10
FAR	<b>52.211-5</b>	MATERIAL REQUIREMENTS	Aug-00
FAR	<b>52.219-8</b>	UTILIZATION OF SMALL BUSINESS CONCERNS	Jan-11

FAR	<b>52.222-21</b>	PROHIBITION OF SEGREGATED FACILITIES	Feb-99
FAR	<b>52.222-26</b>	EQUAL OPPORTUNITY	Mar-07
FAR	<b>52.222-3</b>	CONVICT LABOR	Jun-03
FAR	<b>52.222-35</b>	EQUAL OPPORTUNITY FOR VETERANS	Sep-10
FAR	<b>52.222-36</b>	AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES	Oct-10
FAR	<b>52.222-37</b>	EMPLOYMENT REPORTS ON VETERANS	Sep-06
FAR	<b>52.222-40</b>	NOTIFICATION OF EMPLOYEE RIGHTS UNDER THE NATIONAL LABOR RELATIONS ACT	Dec-10
FAR	<b>52.222-50</b>	COMBATING TRAFFICKING IN PERSONS	Feb-09
FAR	<b>52.223-18</b>	ENCOURAGING CONTRACTOR POLICIES TO BAN TEXT MESSAGING WHILE DRIVING	Aug-11
FAR	<b>52.225-13</b>	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES	Jun-08
FAR	<b>52.225-25</b>	PROHIBITION ON ENGAGING IN SANCTIONED ACTIVITIES RELATING TO IRAN-- CERTIFICATION	Sep-10
FAR	<b>52.232-23</b>	ASSIGNMENT OF CLAIMS	Jan-86
FAR	<b>52.232-25</b>	PROMPT PAYMENT	Oct-08
FAR	<b>52.233-1</b>	DISPUTES	Jul-02
FAR	<b>52.233-3</b>	PROTEST AFTER AWARD	Aug-96
FAR	<b>52.233-4</b>	APPLICABLE LAW FOR BREACH OF CONTRACT CLAIM	Oct-04
FAR	<b>52.242-13</b>	BANKRUPTCY	Jul-95
FAR	<b>52.244-6</b>	SUBCONTRACTS FOR COMMERCIAL ITEMS	Dec-10
FAR	<b>52.253-1</b>	COMPUTER GENERATED FORMS	Jan-91
FAR	<b>52.219-28</b>	POST-AWARD SMALL BUSINESS PROGRAM REREPRESENTATION	Apr-09
FAR	<b>52.232-25</b>	PROMPT PAYMENT	Oct-08
FAR	<b>52.233-2</b>	SERVICE OF PROTEST	Sep-06

### FULL TEXT PROVISIONS AND CLAUSES

#### **52.204-8 Annual Representations and Certifications (Mar 2012)**

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

(2) The small business size standard is **\$7 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 (d) 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 (d) 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 (d) applies.

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

(c)(1) The following representations or certifications in ORCA are applicable to this solicitation as indicated:

(i) [52.203-2](#), Certificate of Independent Price Determination. This provision applies to solicitations when a firm-fixed-price contract or fixed-price contract with economic price adjustment is contemplated, unless—

(A) The acquisition is to be made under the simplified acquisition procedures in [Part 13](#);

(B) The solicitation is a request for technical proposals under two-step sealed bidding procedures; or

(C) The solicitation is for utility services for which rates are set by law or regulation.

(ii) [52.203-11](#), Certification and Disclosure Regarding Payments to Influence Certain Federal Transactions. This provision applies to solicitations expected to exceed \$150,000.

(iii) [52.204-3](#), Taxpayer Identification. This provision applies to solicitations that do not include the clause at [52.204-7](#), Central Contractor Registration.

(iv) [52.204-5](#), Women-Owned Business (Other Than Small Business). This provision applies to solicitations that—

(A) Are not set aside for small business concerns;

(B) Exceed the simplified acquisition threshold; and

(C) Are for contracts that will be performed in the United States or its outlying areas.

(v) [52.209-2](#), Prohibition on Contracting with Inverted Domestic Corporations—Representation. This provision applies to solicitations using funds appropriated in fiscal years 2008, 2009, or 2010.

(vi) [52.209-5](#), Certification Regarding Responsibility Matters. This provision applies to solicitations where the contract value is expected to exceed the simplified acquisition threshold.

(vii) [52.214-14](#), Place of Performance—Sealed Bidding. This provision applies to invitations for bids except those in which the place of performance is specified by the Government.

(viii) [52.215-6](#), Place of Performance. This provision applies to solicitations unless the place of performance is specified by the Government.

(ix) [52.219-1](#), Small Business Program Representations (Basic & Alternate I). This provision applies to solicitations when the contract will be performed in the United States or its outlying areas.

(A) The basic provision applies when the solicitations are issued by other than DoD, NASA, and the Coast Guard.

(B) The provision with its Alternate I applies to solicitations issued by DoD, NASA, or the Coast Guard.

(x) [52.219-2](#), Equal Low Bids. This provision applies to solicitations when contracting by sealed bidding and the contract will be performed in the United States or its outlying areas.

(xi) [52.222-22](#), Previous Contracts and Compliance Reports. This provision applies to solicitations that include the clause at [52.222-26](#), Equal Opportunity.

(xii) [52.222-25](#), Affirmative Action Compliance. This provision applies to solicitations, other than those for construction, when the solicitation includes the clause at [52.222-26](#), Equal Opportunity.

(xiii) [52.222-38](#), Compliance with Veterans' Employment Reporting Requirements. This provision applies to solicitations when it is anticipated the contract award will exceed the simplified acquisition threshold and the contract is not for acquisition of commercial items.

(xiv) [52.223-1](#), Biobased Product Certification. This provision applies to solicitations that require the delivery or specify the use of USDA–designated items; or include the clause at [52.223-2](#), Affirmative Procurement of Biobased Products Under Service and Construction Contracts.

(xv) [52.223-4](#), Recovered Material Certification. This provision applies to solicitations that are for, or specify the use of, EPA–designated items.

(xvi) [52.225-2](#), Buy American Act Certificate. This provision applies to solicitations containing the clause at [52.225-1](#).

(xvii) [52.225-4](#), Buy American Act—Free Trade Agreements—Israeli Trade Act Certificate. (Basic, Alternates I, II, and III.) This provision applies to solicitations containing the clause at [52.225-3](#).

(A) If the acquisition value is less than \$25,000, the basic provision applies.

(B) If the acquisition value is \$25,000 or more but is less than \$50,000, the provision with its Alternate I applies.

(C) If the acquisition value is \$50,000 or more but is less than \$77,494, the provision with its Alternate II applies.

(D) If the acquisition value is \$77,494 or more but is less than \$100,000, the provision with its Alternate III applies.

(xviii) [52.225-6](#), Trade Agreements Certificate. This provision applies to solicitations containing the clause at [52.225-5](#).

(xix) [52.225-20](#), Prohibition on Conducting Restricted Business Operations in Sudan—Certification. This provision applies to all solicitations.

(xx) [52.225-25](#), Prohibition on Contracting with Entities Engaging in Sanctioned Activities Relating to Iran—Representation and Certification. This provision applies to all solicitations.

(xxi) [52.226-2](#), Historically Black College or University and Minority Institution Representation. This provision applies to—

(A) Solicitations for research, studies, supplies, or services of the type normally acquired from higher educational institutions; and

(B) For DoD, NASA, and Coast Guard acquisitions, solicitations that contain the clause at [52.219-23](#), Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns.

(2) The following certifications are applicable as indicated by the Contracting Officer:

[*Contracting Officer check as appropriate.*]

\_\_\_ (i) [52.219-22](#), Small Disadvantaged Business Status.

\_\_\_ (A) Basic.

\_\_\_ (B) Alternate I.

\_\_\_ (ii) [52.222-18](#), Certification Regarding Knowledge of Child Labor for Listed End Products.

\_\_\_ (iii) [52.222-48](#), Exemption from Application of the Service Contract Act to Contracts for Maintenance, Calibration, or Repair of Certain Equipment Certification.

\_\_\_ (iv) [52.222-52](#), Exemption from Application of the Service Contract Act to Contracts for Certain Services—Certification.

\_\_ (v) [52.223-9](#), with its Alternate I, Estimate of Percentage of Recovered Material Content for EPA– Designated Products (Alternate I only).

\_\_ (vi) [52.227-6](#), Royalty Information.

\_\_ (A) Basic.

\_\_ (B) Alternate I.

\_\_ (vii) [52.227-15](#), Representation of Limited Rights Data and Restricted Computer Software.

(d) The offeror has completed the annual representations and certifications electronically via the Online Representations and Certifications Application (ORCA) website accessed through <https://www.acquisition.gov>. After reviewing the ORCA database information, the offeror verifies by submission of the offer that the representations and certifications currently posted electronically that apply to this solicitation as indicated in paragraph (c) of this provision 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)

### **52.219-6 -- Notice of Total Small Business Set-Aside (Nov 2011)**

(a) *Definition*. “Small business concern,” as used in this clause, means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the size standards in this solicitation.

(b) *Applicability*. This clause applies only to--

(1) Contracts that have been totally set aside or reserved for small business concerns; and

(2) Orders set aside for small business concerns under multiple-award contracts as described in 8.405-5 and 16.505(b)(2)(i)(F).\*

(c) *General*.

(1) Offers are solicited only from small business concerns. Offers received from concerns that are not small business concerns shall be considered nonresponsive and will be rejected.

(2) Any award resulting from this solicitation will be made to a small business concern.

(d) *Agreement*. A small business concern submitting an offer in its own name shall furnish, in performing the contract, only end items manufactured or produced by small business concerns in the United States or its

outlying areas. If this procurement is processed under simplified acquisition procedures and the total amount of this contract does not exceed \$25,000, a small business concern may furnish the product of any domestic firm. This paragraph does not apply to construction or service contracts.

(End of Clause)

**52.233-2 -- Service of Protest (Sept 2006)**

(a) 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 Government Accountability 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.

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

(End of provision)