



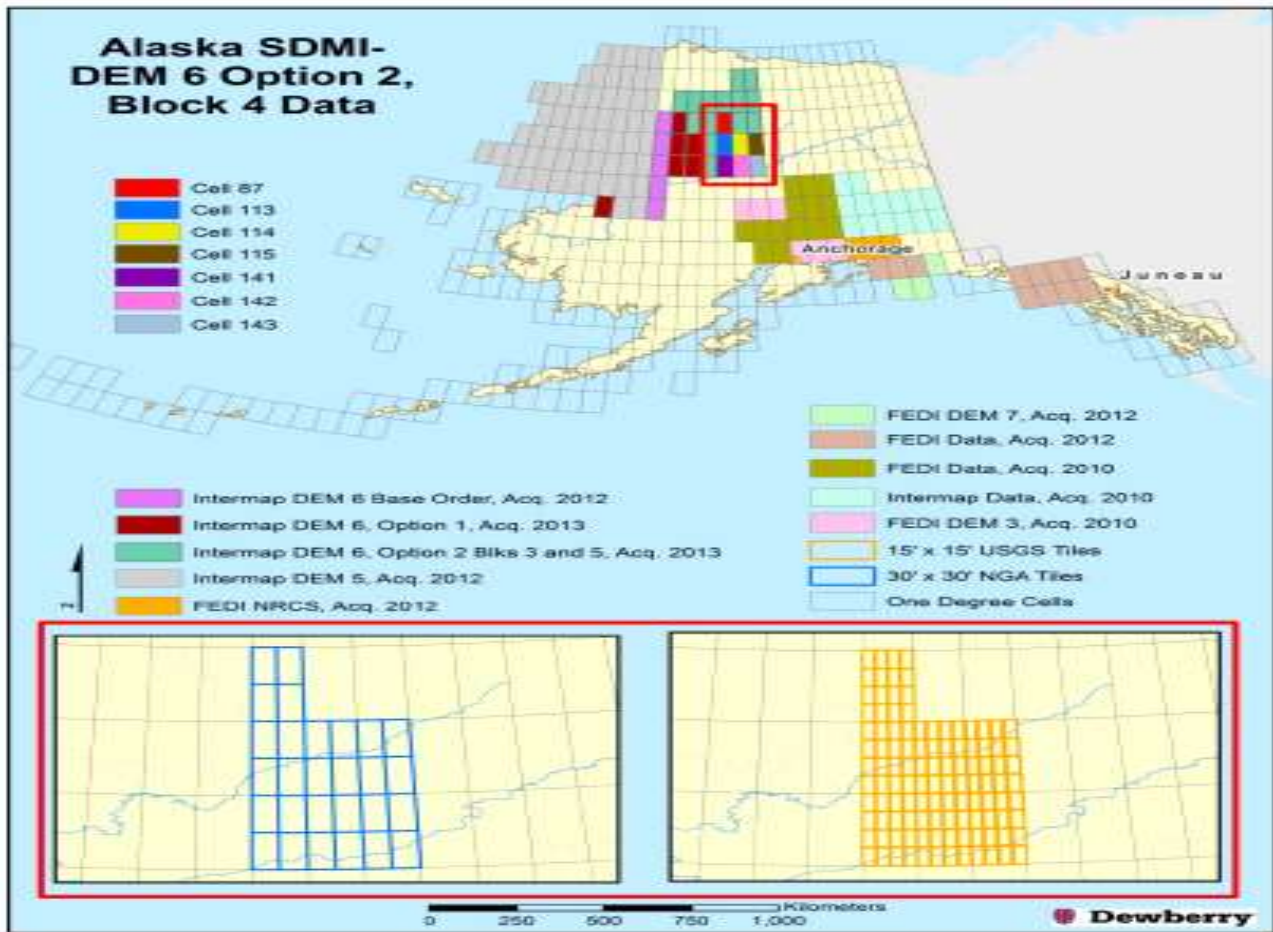
# IFSAR Quality Assessment Report

## AK\_MidAccuracy-DEM6-Lot3\_2013

NGTOC

2014-08-08

Michael Bradford



# Project Information

Project:

Contractor:  Project Type:

**Project Points of Contact:**

Name:	Type:	Phone:	Email:
Pat Emmett	CPT	573-308-3587	pemmett@usgs.gov

### REPORT QUALIFICATION SUMMARY:

**Task Order Overall:**  
meets requirements

**Metadata:**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**Vertical Accuracy:**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**Vertical Offset:**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**Void Fill:**  
7 of 7 Reviews Accepted  
0 Reviews Not Accepted

**Breakline:**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**DEM(s):**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**DSM(s):**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**ORI(s):**  
1 of 1 Reviews Accepted  
0 Reviews Not Accepted

**NED Review:**  
1 of 1 DEM tile reviews recommended for NED  
1/3rd  
0 of 1 DEM tile reviews recommended for NED  
1/9th

Project Subdivision:

**List Lot with Cells:**

Lot	Cells
<input type="text" value="Lot 3 in TOMIS"/>	<input type="text" value="87, 113, 114, 115, 141, 142, 143"/>

of:

**Dates Collected Range:**

Collection Start:

Collection End:

**Sensor Type:**

**Project Aliases:**

**Licensing:**

**Project Description:**

This project is for the IfSAR acquisition and processing of three areas in Alaska (Base AOI, Option 1 AOI, Option 2 AOI) as depicted in Attachment A. The execution of this task order is to be through the use of a base order and 2 options as listed below and is subject to the availability of funding.

- Base order = Acquisition and processing of Base AOI (9,961 sq mi)

- Option 1 = Acquisition and processing of Option 1 AOI (11,662 sq mi)
- Option 2 = Acquisition and processing of Option 2 AOI (38,777 sq mi)

This task requests the processing of a mid-accuracy DEM with 20-foot contour bare earth data for the AOI's depicted in Attachment A. Additionally, the USGS would like Dewberry to include in their technical and cost proposal, the ellipsoid processing (to provide ellipsoid heights) of all data acquired. For all areas, the contractor shall collect and provide a mid-accuracy Digital Elevation Model with a 20' contour accuracy and an Orthorectified RADAR Image (ORI) or similar product at a pixel resolution of 5.0m or better. Reflective Digital Surface Model (DSM) and a bald-earth Digital Terrain Model (DTM) DEM data with regular 5-meter post spacing shall also be provided for all areas. Additionally, HRTe3 data format for the entire area will be provided. FGDC-compliant metadata shall be provided for each data file and an ISO 9001 data-quality certification report shall be provided for each 15-minute tile.

Applicable Specification:

Select or type...

### Review Information

Reviewer:  Date   
 Delivered:  
 3rd Party QA  Date   
 Performed: Assigned:

Action To Contractor Date:	Issue Description:	Return Date:
<input type="text"/>	<input type="text"/>	<input type="text"/>

Review Complete:

Dates Project Worked:

Start:	<input type="text" value="7/15/2014"/>	<input type="text" value="7/24/2014"/>
End:	<input type="text" value="7/21/2014"/>	<input type="text" value="8/8/2014"/>

### Project Materials Received

#### METADATA

Deliverables	Delivered	XML Metadata	Required	Format	Quantity	Additional Details
Collection Report:	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	PDF	<input type="text" value="1"/>	<input type="text"/>
Survey Report:	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	PDF	<input type="text" value="1"/>	<input type="text"/>
Processing Report:	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	PDF	<input type="text" value="1"/>	<input type="text"/>
QA/QC Report:	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	PDF	<input type="text" value="1"/>	<input type="text"/>
					<input type="text"/>	<input type="text"/>

<i>Project Level XML Metadata:</i>	<input type="checkbox"/>		<input type="checkbox"/>	XML	0	
<i>Project Extent:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	1	
<i>Tile Scheme:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	1	
<i>Checkpoints:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	1	
<i>Void Mask:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	112	
<i>Slope Mask:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	112	
<i>Fill Source Mask:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	112	

*Additional Comments:*

**NED**

<i>Deliverables</i>	<i>Delivered</i>	<i>XML Metadata</i>	<i>Required</i>	<i>Format</i>	<i>Quantity</i>	<i>Additional Details</i>
<i>DEM Tiles:</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TIF	112	
<i>Breaklines:</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	.shp	112	

*Additional Comments:*

**OTHER**

<i>Deliverables</i>	<i>Delivered</i>	<i>XML Metadata</i>	<i>Required</i>	<i>Format</i>	<i>Quantity</i>	<i>Additional Details</i>
<i>DSM(s):</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TIF	112	
<i>ORI(s):</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	TIF	112	Additional deliveries with _sup1 as well as _sup2
<i>Flightline (SBETs):</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	.shp	0	

<i>Additional</i>	<i>Delivered</i>	<i>XML</i>	<i>Required</i>	<i>Format</i>	<i>Quantity</i>	<i>Additional Details</i>
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Deliverables		Metadata				
Quality Report(s)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	PDF	112	
Edit Calls	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	SHP	1	

Additional Comments:

### Geographic Information

Area Extent:  *Sq. Miles*

Tile Size:  *Degrees*

DEM/DTM Grid Spacing:  *Meters*

Coordinate Reference System:

Projection:

Horizontal Datum:

- Meters
- U.S. Feet
- Int'l Feet

Vertical Datum:

- Meters
- U.S. Feet
- Int'l Feet

**THIS PROJECTION COORDINATE REFERENCE SYSTEM IS CONSISTENT ACROSS THE FOLLOWING DELIVERABLES:**

- Project Extent
- Project Tile Scheme
- Checkpoints
- Void Mask
- Slope Mask
- Fill Source Mask
- Breakline(s)
- DEM(s)
- DEM XML Metadata
- DSM(s)
- DSM XML Metadata
- ORI(s)
- ORI XML Metadata

Additional Comments:

## Project Review

## Metadata Review

Provided metadata files have been parsed using 'mp' metadata parser. Any errors generated by the parser are documented below for reference and/or corrective action.

**The DEM XML Metadata parsed without errors.**

Check if 'Best Use' metadata for NED:  Project Level  Tile Level

**The DSM XML Metadata parsed without errors.**

Check if 'Best Use' metadata for NED:  Project Level  Tile Level

**The ORI XML Metadata parsed without errors.**

Check if 'Best Use' metadata for NED:  Project Level  Tile Level

**Based on this review, the USGS accepts the xml metadata provided.**

Additional  
Comments:

End of Metadata Review

## Vertical Accuracy Review

### Required Vertical Accuracy

Yes  No

#### REQUIRED PRIMARY VERTICAL ACCURACY

Primary Vertical Accuracy Type: Slope 0-10 degree

Confidence Interval Required:  th % CI

Required Unit:

Required # of checkpoints:

Required RMSEz:

Required Vertical Accuracy (RMSEz \* .% CI)

Additional Required  
Vertical Accuracy  
Information:

### Reported Vertical Accuracy

Yes  No

#### REPORTED PRIMARY VERTICAL ACCURACY

Primary Vertical Accuracy Type: Slope 0-10 degree

Confidence Interval Reported:  th % CI

Reported Unit:

Reported # of checkpoints:

Reported RMSEz:

Reported Vertical Accuracy (RMSEz \* .% CI)

Additional Reported Vertical Accuracy Information:

## Reviewed Vertical Accuracy

Yes  No

### REVIEWED PRIMARY VERTICAL ACCURACY

Primary Vertical Accuracy Type: Slope 0-10 degree

Confidence Interval Reviewed:  th % CI

Reviewed Unit:

Reviewed # of checkpoints:

Reviewed RMSEz:

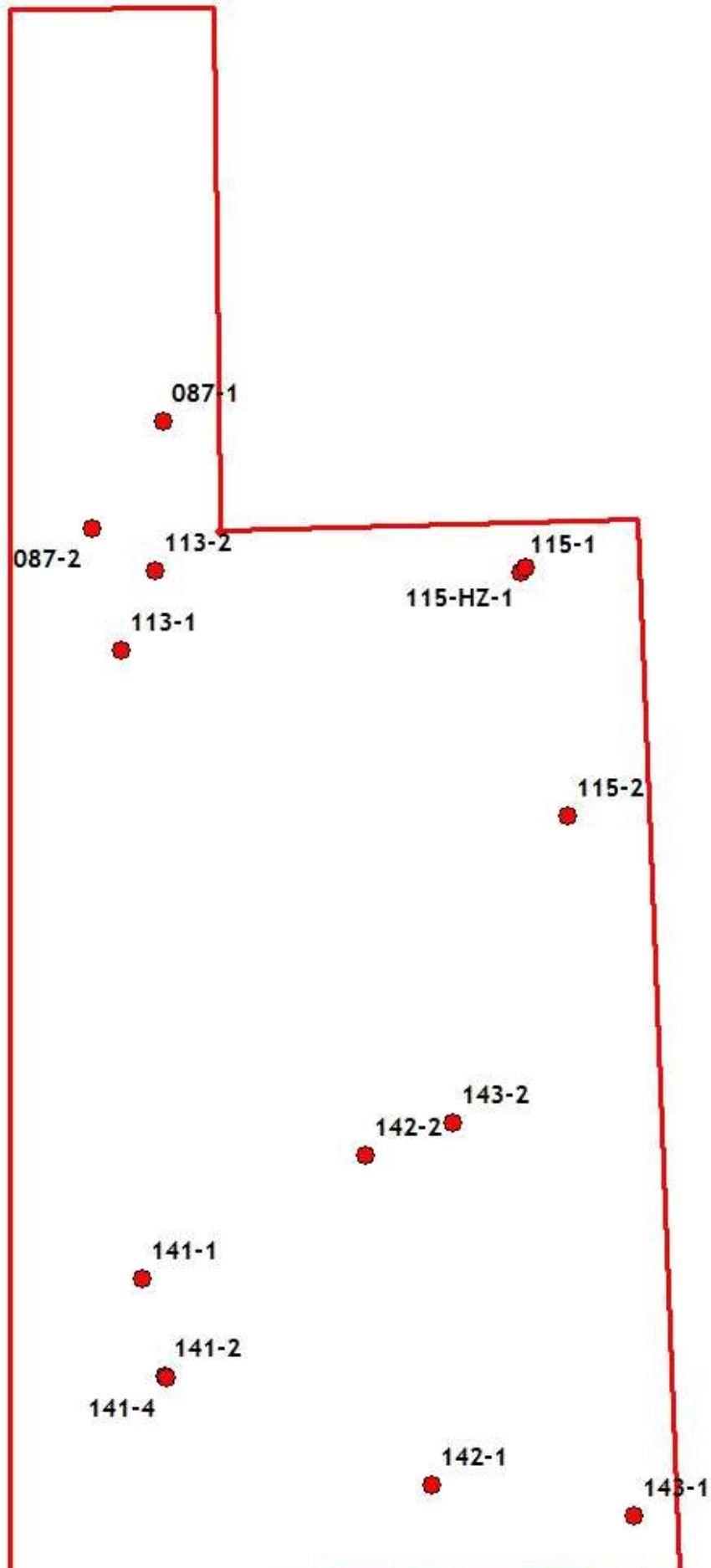
Reviewed Vertical Accuracy (RMSEz \* .% CI)

Checkpoints are well distributed?

Enough checkpoints for task order?

Enough checkpoints for NED?

Checkpoint Distribution Image





Vertical Accuracy Results:

Additional Reviewed  
Vertical Accuracy  
Information:

Based on this review, the USGS accepts the vertical accuracy.

End of Vertical Accuracy Review

### Vertical Offset Review

All Cells

Review Required:  Yes  No

Absolute maximum allowed:  Absolute actual Maximum:

Absolute reported maximum:  Unit:

Based on this review, the USGS accepts the amount of vertical offset.

Additional comments:

Reviewed vertical offset between all cells, all had 0 meters vertical offset. Reviewer accepts the amount of vertical offset.

End of All Cells Vertical Offset Review

### Void Fill Review

Cell 87

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	<input type="text" value="3"/> %	Maximum void allowed: (after fill)	<input type="text" value="not applicable"/>
Maximum void allowed per tile: (prior to fill)	<input type="text" value="5"/> %	Maximum void allowed per tile: (after fill)	<input type="text" value="not applicable"/>
Maximum void reported: (prior to fill)	<input type="text" value="not reported"/>	Maximum void reported: (after fill)	<input type="text" value="not reported"/>
Maximum void reported per tile: (prior to fill)	<input type="text" value="not reported"/>	Maximum void reported per tile: (after fill)	<input type="text" value="not reported"/>
Maximum void reviewed: (prior to fill)	<input type="text" value="0.426943702"/> %	Maximum void reviewed: (after fill)	<input type="text" value="0"/> %

Maximum void reviewed per tile: (prior to fill)	1.121538566 %	Maximum void reviewed per tile: (after fill)	0 %
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Void Fill Source:

NED

Based on this review, the USGS **accepts** the void fill(s).

Additional comments:

End of Cell 87 Void Fill Review

## Void Fill Review

Cell 113

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable
Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.013589920 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.107106958 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

Based on this review, the USGS **accepts** the void fill(s).

Additional comments:

End of Cell 113 Void Fill Review

**Void Fill Review**  
Cell 114

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable
Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.008358720 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.044241781 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

**Based on this review, the USGS accepts the void fill(s).**

Additional comments:

End of Cell 114 Void Fill Review

**Void Fill Review**  
Cell 115

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable

Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.003963774 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.028254654 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

Based on this review, the USGS accepts the void fill(s).

Additional comments:

End of Cell 115 Void Fill Review

## Void Fill Review

Cell 141

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable
Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.003759008 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.030426701 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

Based on this review, the USGS **accepts** the void fill(s).

Additional comments:

End of Cell 141 Void Fill Review

**Void Fill Review**  
Cell 142

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable
Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.010026588 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.036257043 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

Based on this review, the USGS **accepts** the void fill(s).

Additional comments:

End of Cell 142 Void Fill Review

**Void Fill Review**  
Cell 143

Review Required:  Yes  No

**VOID FILL CHARACTERISTICS**

Maximum void allowed: (prior to fill)	3 %	Maximum void allowed: (after fill)	not applicable
Maximum void allowed per tile: (prior to fill)	5 %	Maximum void allowed per tile: (after fill)	not applicable
Maximum void reported: (prior to fill)	not reported	Maximum void reported: (after fill)	not reported
Maximum void reported per tile: (prior to fill)	not reported	Maximum void reported per tile: (after fill)	not reported
Maximum void reviewed: (prior to fill)	0.008067629 %	Maximum void reviewed: (after fill)	0 %
Maximum void reviewed per tile: (prior to fill)	0.051675652 %	Maximum void reviewed per tile: (after fill)	0 %

Void Fill Source:

NED

Based on this review, the USGS accepts the void fill(s).

Additional comments:

End of Cell 143 Void Fill Review

**Breakline Review**

DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143

Review Required:  Yes  No

**BREAKLINE FILE CHARACTERISTICS:**

- Separate folder for breakline files.
- Breaklines contain elevation values.
- Waterbody Breaklines.

Polyline  Polygon

- Single elevation value per waterbody feature.
- Required.

Waterbody Elevations were created via Select... waterbody level techniques.

- Double Line Stream Breaklines (Streams Approximately > 50 ft).

Polyline  Polygon

Downstream DLS Flow is Select...

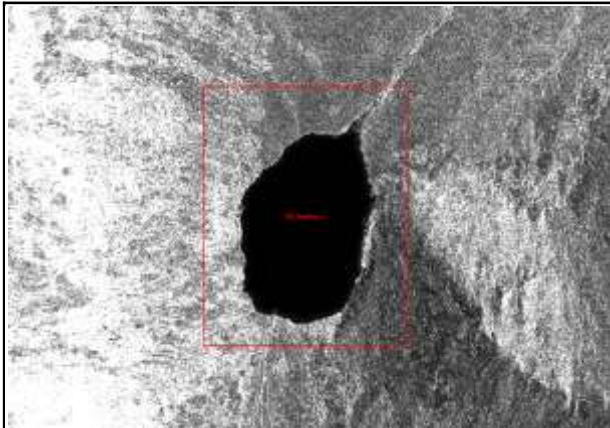
Required.

Single Line Breaklines.

No missing or misplaced breaklines.

**Based on this review, the USGS accepts the breakline files.**

ADDITIONAL COMMENTS, ERRORS, ANOMALIES, OR OTHER ISSUES:



Missing breakline around waterbody in Cell 143

*\*issue has been fixed by vendor, reviewer now accepts the breakline files.*

End of DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143 Breakline Review

## DEM Review

DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143

### BARE-EARTH DEM TILE CHARACTERISTICS:

Separate folder for bare-earth DEM files

Raster File Type: TIF

Raster Cell Size:  Meters

Tile bit depth/pixel Type:

Interpolation or Resampling Technique: Select...

DEM tiles overlap:  Yes  No

DEM tiles conform to Project Tiling Scheme

Quantity of DEM files conforms to Project Tiling Scheme

DEM tiles are uniform in size

DEM tiles properly edge match and free of edge artifacts

Tiles are free from Spikes and Pits

Tiles are free from Data Holidays

Tiles do not exhibit systematic sensor error or corrowring

DEM tiles are properly Hydro Flattened  Yes  No

- Waterbodies 2 Acers or greater are flattened
- Streams 50 ft or greater are flattened in a downstream manner
- Tidal Boundaries/Shorelines are flattened
- No missing islands
- Perennial ice/snow treated as terrain
- Annual ice/snow not treated as terrain
- Bridges/Overpasses are properly removed
- Culverts are maintained (Not Hydro Enforced)
- Depressions, Sinks, are not filled in (Not Hydro Conditioned)
- Vegetation properly removed
- Manmade structures properly removed

Tiles meet NED 1/3rd Requirements:  Yes.  No.

Tiles meet NED 1/9th Requirements:  Yes.  No.

**Based on this review, the USGS accepts the DEM tiles.**

End of DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143 DEM Review

## DSM Review

DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143

Review Required:  Yes  No

### DSM TILE CHARACTERISTICS:

Separate folder for bare-earth DEM files

Raster File Type: TIF

Raster Cell Size:  Meters

Tile bit depth/pixel type:

Interpolation or Resampling Technique: Select...

DSM tiles overlap:  Yes  No

- DSM tiles conform to Project Tiling Scheme
- Quantity of DSM files conforms to Project Tiling Scheme
- DSM tiles are uniform in size
- DSM tiles properly edge match and free of edge artifacts
- Tiles are free from Spikes and Pits
- Tiles are free from Data Holidays
- Tiles do not exhibit systematic sensor error or comrowing

DSM tiles are properly Hydro Flattened  Yes  No

- Waterbodies 2 Acers or greater are flattened
- Streams 50 ft or greater are flattened in a downstream manner
- Tidal Boundaries/Shorelines are flattened



- No missing islands
- Perennial ice/snow treated as terrain
- Annual ice/snow not treated as terrain
- Culverts are maintained (Not Hydro Enforced)
- Depressions, Sinks, are not filled in (Not Hydro Conditioned)

Based on this review, the USGS accepts the DSM tiles.

End of DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143 DSM Review

## ORI Review

DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143

Review Required:  Yes  No

### ORI TILE CHARACTERISTICS:

- Separate folder for ORI files
- Raster File Type: TIF
- Raster Cell Size: 0.625 Meters
- Tile bit depth/pixel type: 8\_BIT\_UNSIGNED
- Interpolation or Resampling Technique: Select...
- ORI tiles overlap:  Yes  No
- ORI tiles conform to Project Tiling Scheme
- Quantity of ORI files conforms to Project Tiling Scheme
- ORI tiles are uniform in size
- ORI tiles properly edge match and free of edge artifacts
- Tiles are free from Data Holidays
- Tiles do not exhibit systematic sensor error or corrowing
- ORI tiles validate hydroflattening/breakline placement and quantity

Based on this review, the USGS accepts the ORI tiles.

End of DEM 6 Lot 3 Cells; 87, 113, 114, 115, 141, 142, 143 ORI Review

Based on this review, the provided delivery meets the Task Order requirements.

## NED Information

Final to NED mosaic created:  Yes  No

Metadata Created:  Yes  No

Additional Comments:

END OF REPORT