

THRASHER

2019 - Six Central
WV Counties (Jackson, Roane,
Calhoun, Gilmer, Clay, Braxton)
Aerial Triangulation
And Ground Control
Report

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The Thrasher Group (TTG) has successfully completed the aerial triangulation (AT) for the countywide spring flight.

Using semi-automatic analytical aerial triangulation procedures, TTG determined the exterior orientation parameters for each exposure in the photography that covers the project area.

The results of the final adjustments are sufficient to enable TTG to photogrammetrically produce orthophotos from the photography. The AT solution ensures that the project data will meet or exceed the accuracy expectation as outlined in the contract.

Ground Control

The ground control network was designed to provide a geometrically strong horizontal and vertical control system within the project area.

Sufficiently identified ground control points (GCPs) were surveyed within the block to provide horizontal and vertical control.

Aerial Photography

Aerial photography for the project was captured between March 11, 2019 and April 3, 2019.

The photography was acquired with an approximate 60 percent overlap and an approximate 30 percent side lap. The flight altitude of the photography was approximately 7,700 feet above mean terrain.

Airborne GPS

Airborne-GPS (ABGPS) data was captured during the acquisition of the aerial photography. An appropriate GPS antenna was mounted on each aircraft used on the project, and the relationship between the antenna phase centers and the camera perspective centers was then determined through close-range survey techniques. Dual frequency, geodetic quality receivers were utilized for the data collection.

The GPS data was post-processed, and the appropriate interpolations, transformations and reductions were applied to derive the camera's spatial position referenced to the World Geodetic System of 1984 (WGS84) at each instant of exposure.

Flight

The flight plan was comprised of 75 flight lines. The designed ground sample distance per pixel was 10 centimeters.

The block consisted of a total of 6,683 images.

A fully equipped aircraft was employed for the photographic mission. In the aircraft, the instrumentation utilized in the acquisition of aerial photography and ABGPS data comprised of a Zeiss DMC III aerial camera featuring forward motion compensation, and a GPS Novatel Span Receiver with a collection rate of one half-second.

During each flight, every exposure triggered by each camera was recorded in the associated GPS data file as an external event. A time stamp for each event later allowed the interpolation of the camera position at each instant or exposure.

Aerial Triangulation

Aerial triangulation is the simultaneous space resection of image rays projected and recorded at one source, the perspective center of the aerial camera. These image rays projected from two or more overlapping images (stereo-models) intersect at the corresponding ground location to determine the three-dimensional coordinates of each point measured. This collection of image rays is fit to known ground survey control in a simultaneous three-dimensional least squares adjustment. After the completion of this adjustment, coordinates of the 'unknown' ground points are derived by the intersection of the adjusted image points.

The aerial triangulation was performed utilizing the ground control and the airborne GPS-assisted techniques. These data are then introduced along with the reduced image coordinates, as observations, into a combined three-dimensional simultaneous least squares adjustment by bundles. This approach allows a substantial reduction in the amount of ground control required for the AT solutions.

The purpose of aerial triangulation is to densify horizontal and vertical control from relatively few ground control points (GCPs). Since obtaining GCPs is a relatively significant expense in any mapping project, AT procedures are used to reduce the amount of field survey required by extending control to all stereo-models.

Internal software checks were performed to detect gross errors in the photo measurements.

Bundle Adjustment

The surveyed control, along with the reduced image coordinates, served as input into the 'combined' block adjustment. Three-dimensional, simultaneous least squares adjustments by bundles, were undertaken using Match-AT bundle adjustment software. This bundle block adjustment software has proven to be a very rigorous and stable platform.

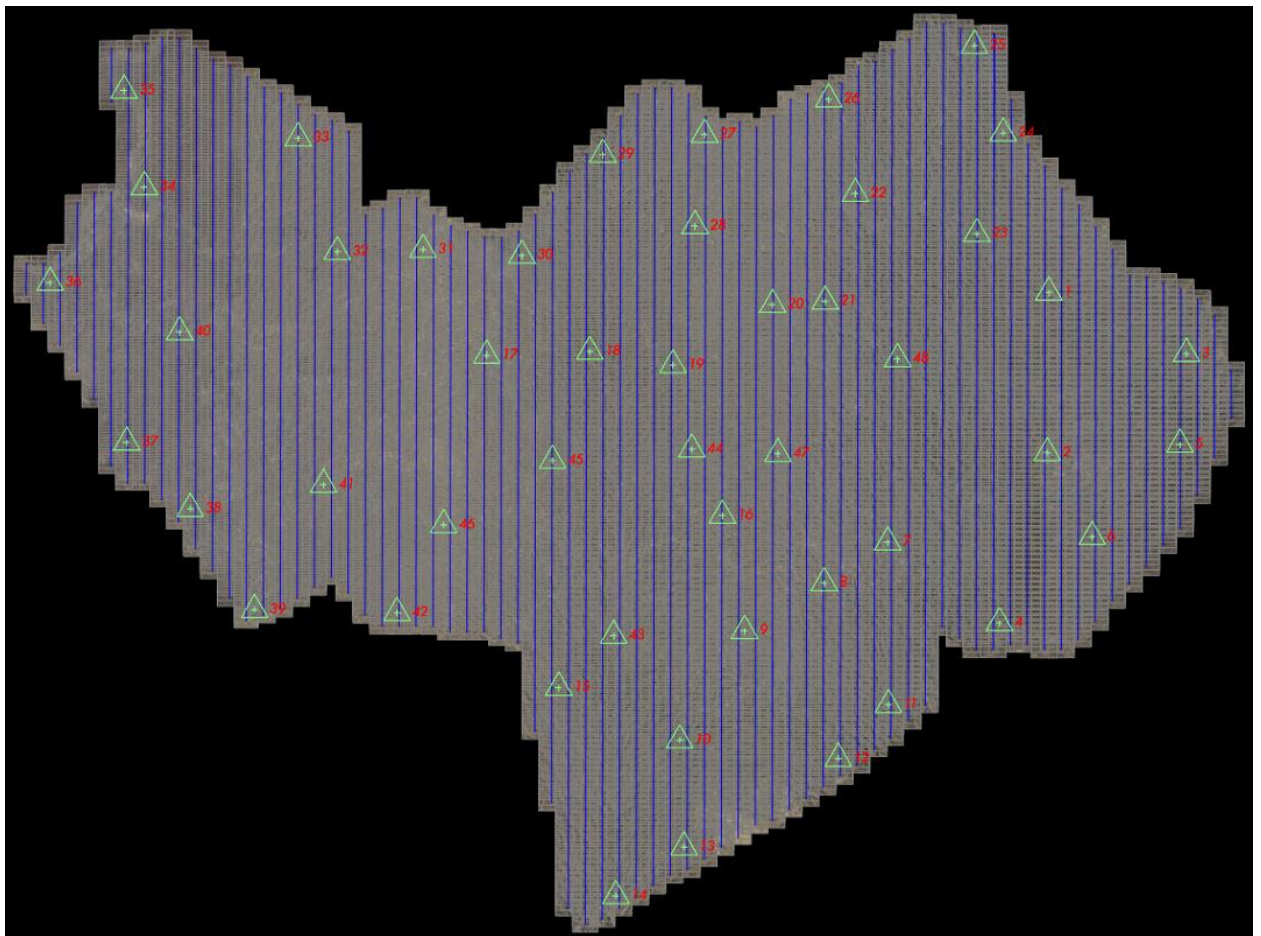
Forty-five control points were used to constrain the AT solution. The sigma naught is a significant indicator of the quality of the adjustment. The sigma value derived by the block adjustment is the root mean square of all photo measurement residuals for the entire block. The lower the sigma naught, the less tension within the AT solution. The sigma naught for this adjustment was 0.4 microns. The

residuals of the control points from measured position to surveyed position are as follows:

Residual point x y z (ft.)

1	-0.007	-0.028	-0.004
2	0.053	0.040	0.040
3	-0.036	-0.047	-0.050
4	-0.058	-0.142	-0.149
5	0.024	-0.129	0.008
6	0.000	-0.013	-0.003
7	-0.021	-0.039	-0.012
8	0.047	-0.059	-0.029
9	-0.005	0.022	-0.003
10	-0.036	-0.073	-0.063
11	0.000	0.000	-0.049
12	0.074	-0.160	-0.006
13	0.013	-0.015	-0.025
14	-0.053	-0.002	0.020
15	0.169	-0.054	0.147
16	-0.013	0.072	-0.009
17	-0.200	0.019	-0.057
18	-0.005	-0.062	-0.030
19	-0.018	0.041	0.010
20	-0.002	0.003	0.009
21	0.028	0.027	0.026
22	0.022	-0.068	-0.020
23	0.013	0.022	0.006
24	0.009	-0.052	0.016
26	-0.058	-0.006	0.010
27	-0.086	-0.010	-0.036
28	-0.004	0.179	0.045
29	-0.162	0.000	0.054
30	-0.175	-0.027	0.057
31	0.000	-0.017	-0.095
32	-0.086	0.030	0.018

33	-0.060	-0.080	-0.052
34	-0.069	0.078	0.011
36	-0.036	0.103	0.013
37	-0.141	-0.019	-0.045
38	-0.010	-0.006	-0.033
40	-0.054	-0.004	-0.042
41	-0.019	0.151	-0.003
42	-0.086	0.109	0.045
43	0.046	0.144	0.067
44	-0.105	0.090	-0.000
45	0.032	0.001	0.003
46	-0.072	0.012	-0.123
47	0.029	0.027	0.022
48	-0.068	0.009	-0.080



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.023 Vertical 0.033	
Date: 03/04/2019	
Location: "Burnsville"	

Point 06310001 - ACP 1

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 677153.434
Easting (ft): 2064650.602
Elevation (ft): 768.799



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.005 Vertical 0.010	
Date: 03/04/2019	
Location: "Flatwoods"	

Point 06310003 - ACP 2

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 621349.632
Easting (ft): 2064157.440
Elevation (ft): 1119.659



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.022 Vertical 0.037	
Date: 03/04/2019	
Location: "Fall Run"	

Point 0631005 - ACP 3

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 655786.593
Easting (ft): 2112531.854
Elevation (ft): 1032.415



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.015 Vertical 0.025	
Date: 03/04/2019	
Location: "Gravel Fork Road/Route 19"	

Point 0631007 - ACP 4

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 562315.210
Easting (ft): 2047460.222
Elevation (ft): 1470.604



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.016 Vertical 0.024	
Date: 03/05/2019	
Location: "Repelte"	

Point 641001 - ACP 5

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 624282.164
Easting (ft): 2110326.666
Elevation (ft): 1700.238



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.009 Vertical 0.016	
Date: 03/05/2019	
Location: "Poplar Ridge"	

Point 641003 - ACP 6

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 592178.691

Easting (ft): 2079716.456

Elevation (ft): 1647.078



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.015 Vertical 0.020	
Date: 03/05/2019	
Location: "Frametown"	

Point 641005 - ACP 7

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 590314.628
Easting (ft): 2008572.783
Elevation (ft): 840.847



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.046	
Date: 03/05/2019	
Location: "Duck"	

Point 641007 - ACP 8

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 576146.096
Easting (ft): 1986470.011
Elevation (ft): 795.270



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/05/2019	
Location: "Ivy Dale"	

Point 641008 - ACP 9

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 559554.757
Easting (ft): 1958735.803
Elevation (ft): 758.007



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.017 Vertical 0.028	
Date: 03/05/2019	
Location: "Hartland"	

Point 641010 - ACP 10

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 521523.206
Easting (ft): 1936112.467
Elevation (ft): 729.491



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.015 Vertical 0.032	
Date: 03/06/2019	
Location: "Widen"	

Point 0651001 - ACP 11

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 533837.826
Easting (ft): 2008792.476
Elevation (ft): 1145.038



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.017 Vertical 0.023	
Date: 03/06/2019	
Location: "Dog Run Road"	

Point 0651003 - ACP 12

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 515139.204

Easting (ft): 1991325.022

Elevation (ft): 1724.518



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.033 Vertical 0.071	
Date: 03/06/2019	
Location: "Rt. 24"	

Point 0651005 - ACP 13

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 484387.775

Easting (ft): 1937621.042

Elevation (ft): 1176.700



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.034 Vertical 0.056	
Date: 03/06/2019	
Location: "Bentree"	

Point 0651007 - ACP 14

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 467431.467
Easting (ft): 1913921.664
Elevation (ft): 914.078



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.017 Vertical 0.038	
Date: 03/06/2019	
Location: "Corton"	

Point 0651009 - ACP 15

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 539801.805
Easting (ft): 1894037.255
Elevation (ft): 645.782



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Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.016 Vertical 0.026	
Date: 03/06/2019	
Location: "Nebo"	

Point 0651011 - ACP 16

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 599642.390

Easting (ft): 1950972.111

Elevation (ft): 865.609



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Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.016 Vertical 0.026	
Date: 03/07/2019	
Location: "Spencer"	

Point 661001 - ACP 17

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 655226.571
Easting (ft): 1868952.115
Elevation (ft): 750.186



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/07/2019	
Location: "Little Leather Bark"	

Point 661002 - ACP 18

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 656538.579
Easting (ft): 1904802.404
Elevation (ft): 718.483



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.014 Vertical 0.027	
Date: 03/07/2019	
Location: "The Y"	

Point 661004 - ACP 19

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 651840.592

Easting (ft): 1933773.042

Elevation (ft): 734.412



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/07/2019	
Location: "Stumptown"	

Point 661005 - ACP 20

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 672809.271
Easting (ft): 1968478.615
Elevation (ft): 721.941



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.035 Vertical 0.026	
Date: 03/07/2019	
Location: "Normantown"	

Point 591262 - ACP 21

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 673986.677

Easting (ft): 1986806.066

Elevation (ft): 743.837



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.014 Vertical 0.023	
Date: 03/07/2019	
Location: "Little Kanawha Parkway"	

Point 661008 - ACP 22

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 711406.371
Easting (ft): 1997289.251
Elevation (ft): 728.53



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.014 Vertical 0.033	
Date: 03/07/2019	
Location: "Sand Fork"	

Point 661010 - ACP 23

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 697465.276
Easting (ft): 2039587.206
Elevation (ft): 737.041



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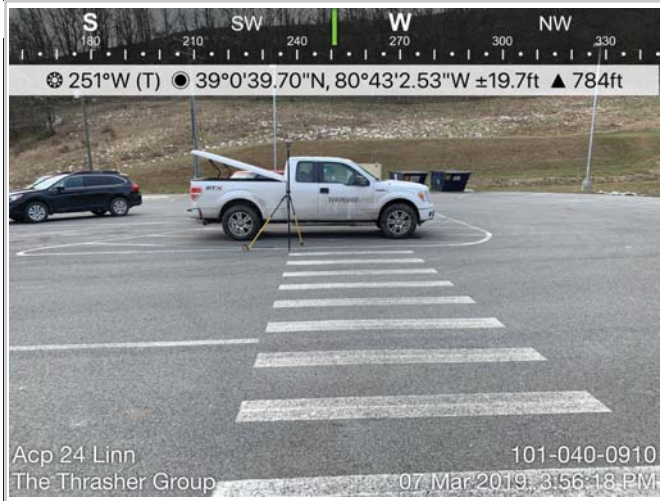
GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/07/2019	
Location: "Linn"	

Point 591263 - ACP 24

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 732441.97
Easting (ft): 2048777.116
Elevation (ft): 787.502



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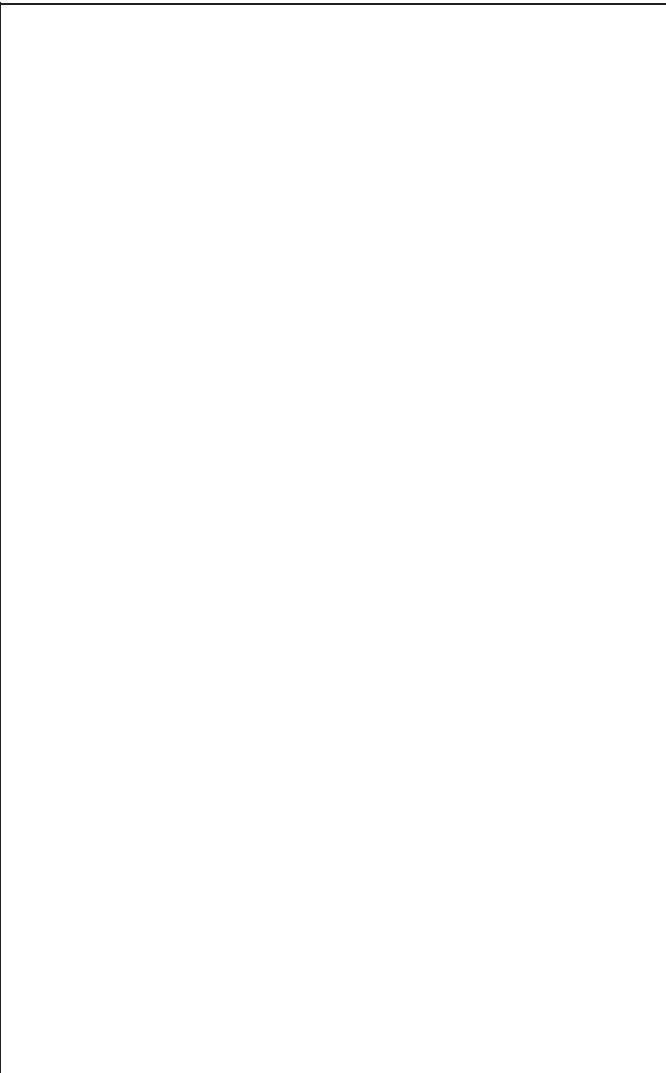
GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/11/2019	
Location: "Cove Creek"	

Point 591262 - ACP 25

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 762853.612
Easting (ft): 2038735.863
Elevation (ft): 822.712



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.023 Vertical 0.039	
Date: 03/11/2019	
Location: "New Mount Olive Church"	

Point 701002 - ACP 26

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 744243.861
Easting (ft): 1987970.612
Elevation (ft): 1251.716



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.013 Vertical 0.019	
Date: 03/11/2019	
Location: "North Calhoun Highway"	

Point 701004 - ACP 27

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 731981.646
Easting (ft): 1944784.575
Elevation (ft): 982.496



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.009 Vertical 0.022	
Date: 03/11/2019	
Location: "Grantsville"	

Point 701006 - ACP 28

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 700196.937
Easting (ft): 1941448.26
Elevation (ft): 706.065



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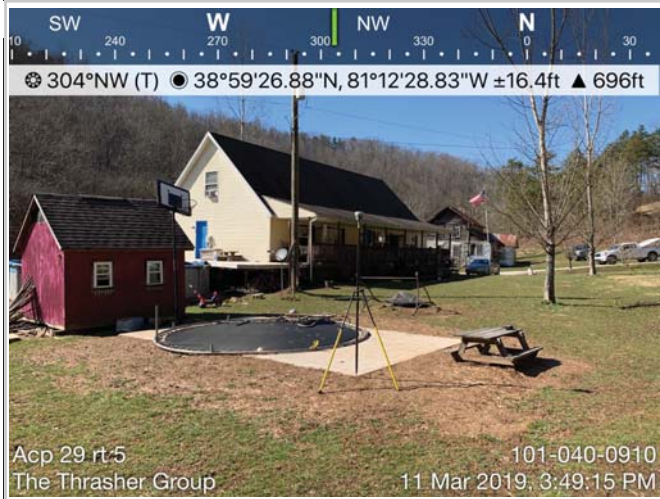
GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/11/2019	
Location: "Rt. 5"	

Point 701007 - ACP 29

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 725041.224
Easting (ft): 1909346.395
Elevation (ft): 698.683



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.013 Vertical 0.021	
Date: 03/11/2019	
Location: "Toms Run"	

Point 701009 - ACP 30

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 689986.077
Easting (ft): 1881175.650
Elevation (ft): 1027.540



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/12/2019	
Location: "Reedy"	

Point 0591262 - ACP 31

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 691978.203
Easting (ft): 1846756.782
Elevation (ft): 677.794



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/12/2019	
Location: "Liverpool"	

Point 0591263 - ACP 32

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 691206.603
Easting (ft): 1816861.399
Elevation (ft): 694.454



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Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.027 Vertical 0.052	
Date: 03/12/2019	
Location: "Nicholas Hollow"	

Point 0711003 - ACP 33

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 730749.051
Easting (ft): 1803281.210
Elevation (ft): 657.413



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Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.008 Vertical 0.012	
Date: 03/12/2019	
Location: "Ravenswood"	

Point 0711005 - ACP 34

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 713761.200
Easting (ft): 1749742.903
Elevation (ft): 612.372



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Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.016 Vertical 0.021	
Date: 03/12/2019	
Location: "1st Ave."	

Point 0711007 - ACP 35

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 747254.014

Easting (ft): 1742677.808

Elevation (ft): 590.906



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.011 Vertical 0.022	
Date: 03/12/2019	
Location: "Mt Alto"	

Point 0711009 - ACP 36

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 680506.500
Easting (ft): 1716974.257
Elevation (ft): 722.516



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.014 Vertical 0.038	
Date: 03/12/2019	
Location: "Rock Castle"	

Point 07111011 - ACP 37

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 624974.273

Easting (ft): 1743633.980

Elevation (ft): 705.511



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.017 Vertical 0.027	
Date: 03/12/2019	
Location: "Divide Ridge"	

Point 07111013 - ACP 38

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 601952.311
Easting (ft): 1765716.973
Elevation (ft): 1064.005



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.024 Vertical 0.039	
Date: 03/12/2019	
Location: "Fisher Chaple"	

Point 0711015 - ACP 39

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 566847.374
Easting (ft): 1788093.842
Elevation (ft): 626.063

W 270 300 330 N 0 30 60 NE

349°N (T) 38°33'17.86"N, 81°37'51.04"W ±19.7ft ▲ 618ft

Acp 39 fisher chaple 101-040-0910
The Thrasher Group 12 Mar 2019, 5:08:33 PM

NW 330 N 0 30 60 90 120 E SE

45°NE (T) 38°33'17.81"N, 81°37'51.37"W ±16.4ft ▲ 622ft

Acp 39 fisher chaple 101-040-0910
The Thrasher Group 12 Mar 2019, 5:07:58 PM

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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.018 Vertical 0.031	
Date: 03/13/2019	
Location: "Ripley"	

Point 721001 - ACP 40

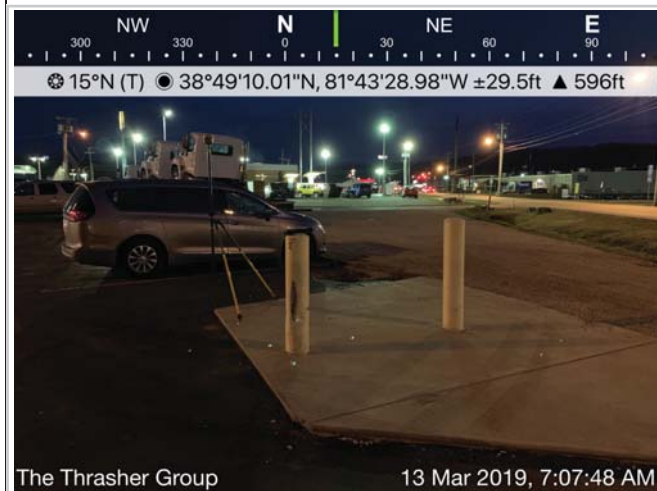
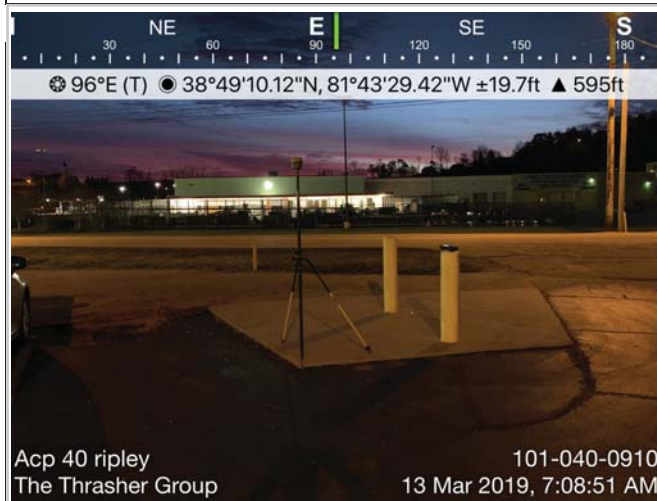
Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 663366.049

Easting (ft): 1762008.709

Elevation (ft): 595.827



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.019 Vertical 0.026	
Date: 03/13/2019	
Location: "Vicars Ridge"	

Point 721003 - ACP 41

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 610305.321

Easting (ft): 1812144.191

Elevation (ft): 1042.360



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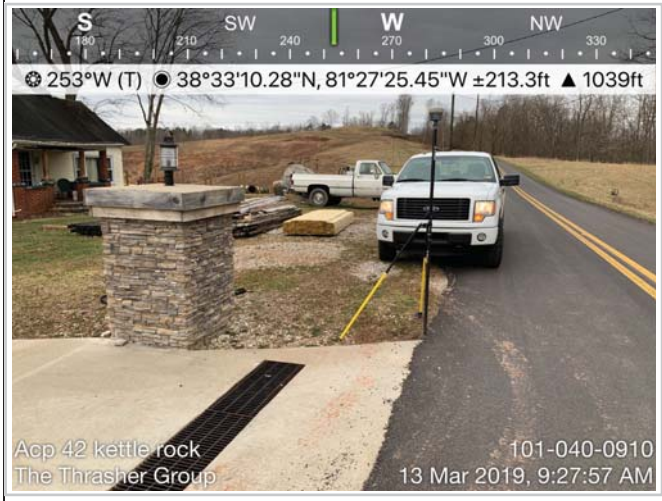
GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.017 Vertical 0.033	
Date: 03/13/2019	
Location: "Kettle Rock"	

Point 721005 - ACP 42

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 565785.055
Easting (ft): 1837678.468
Elevation (ft): 1051.083



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.034 Vertical 0.053	
Date: 03/13/2019	
Location: "Pigeon"	

Point 721007 - ACP 43

Description:

Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 557853.017

Easting (ft): 1913136.703

Elevation (ft): 911.935



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/13/2019	
Location: "Minnora"	

Point 591264 - ACP 44

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 622596.855
Easting (ft): 1940345.994
Elevation (ft): 782.512



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.016 Vertical 0.022	
Date: 03/13/2019	
Location: "Looneyville"	

Point 721010 - ACP 45

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 618688.394
Easting (ft): 1891854.557
Elevation (ft): 1117.556



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.039 Vertical 0.101	
Date: 03/13/2019	
Location: "Walton"	

Point 721012 - ACP 46

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 596297.875
Easting (ft): 1853929.01
Elevation (ft): 726.643



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/14/2019	
Location: "Mt Run"	

Point 0731000 - ACP 47

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 621052.282
Easting (ft): 1970327.939
Elevation (ft): 961.074



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GNSS CONTROL POINT LOCATION SHEET

Horizontal Datum: NAD83	Vertical Datum: NAVD88
Projection: WV South (4702)	Geoid: Geoid12B
Precisions (ft): Horizontal 0.026 Vertical 0.035	
Date: 03/14/2019	
Location: "Kanawha"	

Point 0731001 - ACP 48

Description:
Project - 040-00910 - 2019 WV Statewide Aerial - Central WV

Northing (ft): 654003.357
Easting (ft): 2011984.591
Elevation (ft): 831.36

