

TX_Pecos-Dallas_2018_D19

Survey Report

Contract Number: G16PC00044

Task Order Number: 140G0219F0014



Government Point-of-Contact (POC)

Organization: United States Geological Survey

Telephone: True

Address: Robert Haselwander, MS 662

1400 Independence Road

Rolla, MO, 65401



Contractor Point-of-Contact (POC)

Address: Digital Aerial Solutions, LLC

Telephone: (813) 628-0788

Joshua Helton (VP)

4027 Crescent Park Drive

Riverview, FL 33578

Overview

Digital Aerial Solutions, LLC (DAS) with contract number G16PC00044 was contracted by the United States Geological Survey under task order number 140G0219F0014 collect a high resolution LiDAR data set covering 24 square miles Smith county in Texas. Each of these categories was spread out as evenly as possible throughout the Area of Interest (AOI). The survey was completed using the Global Positioning System (GPS). Each observation was identified in the field and surveyed utilizing GPS receivers, collecting GNSS and GLONASS information and utilizing a Leica Smart- Net RTK network. In accordance with section C.1.e.(i)(c) of the task order, the spatial reference system used was:

Spatial Reference System:

Coordinate System: Universal Transverse Mercator 15N

Horizontal Datum: North American Datum 1983 (2011)

Vertical Datum: North American Vertical Datum of 1988

Units: Meters

Geoid Model: Geoid12B

Section C.1.b.(viii) of the task order outlines the ground control minimum requirements and specifications for this LiDAR project. 5 Supplemental ground control points were collected and used to support the airborne GPS solution and positional accuracy. DAS also collected more than the required number of Non-Vegetated Vertical Accuracy (NVA) and Vegetated Vertical Accuracy (VVA) Quality Checkpoints as stated in the task order. These checkpoints serve as an independent delivery to the client and were not incorporated into the vertical solution.

Glossary of Terms

Term - Definition

ATTN	- Attention
BE	- Bare Earth Checkpoint (see NVA)
CTRL	- Control
DAS	- Digital Aerial Solutions, LLC
Ellip	- Ellipsoid Height
FIPS	- Federal Information Processing Standard
GPS	- Global Positioning Systems
UT	- Urban Terrain(see NVA)
HV	- High Vegetation(see VVA)
ID	- Identification
LV	- Low Vegetation (see VVA)
LiDAR	- Light Detection and Ranging
MV	- Medium Vegetation (see VVA)
NAD83	- North American Datum of 1983
NAVD88	- North American Vertical Datum of 1988
NGS	- National Geodetic Survey
NGTOC	- National Geospatial Technical Operations Center
NVA	- Non-Vegetated Vertical Accuracy
Ortho	- Orthometric Height
POC	- Point of Contact
RTK	- Real Time Kinematics
USGS	- United States Geological Survey
VP	- Vice President
VVA	- Vegetated Vertical Accuracy

Supplemental Ground Control

The Map shows the overall distribution of the Supplemental Ground Control throughout the AOI. The following tables contain a list of the control using Easting, Northing, and Orthometric height. The coordinate system displayed is Universal Transverse Mercator 15N, North American Datum 1983 (2011), North American Vertical Datum of 1988, Geoid12B and using Meters for measurement.

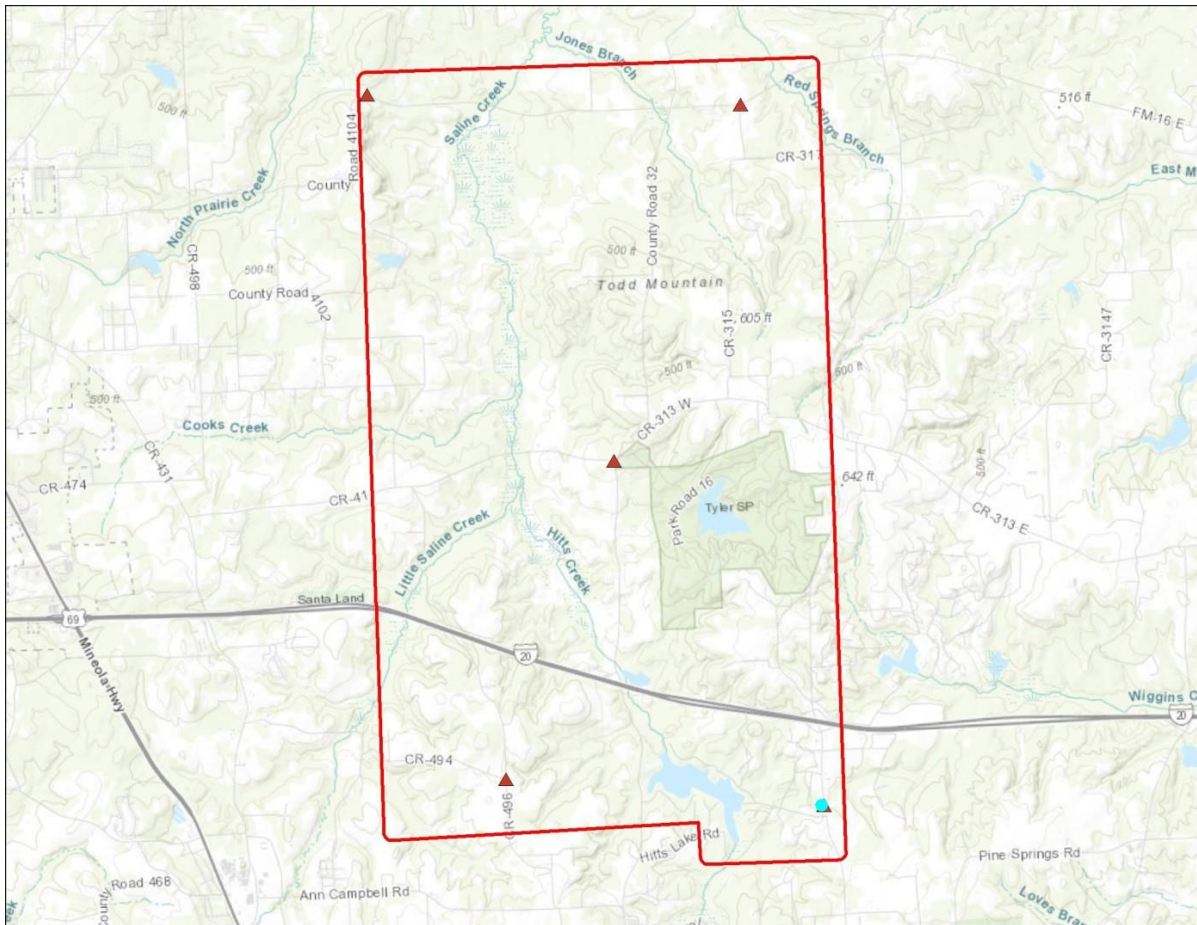


TABLE: Ground Control Points

Point ID	Easting	Northing	Ortho
1_1	281211.927	3592430.961	166.072
1_10	284794.044	3601147.156	131.917
1_13	279890.971	3601548.492	131.89
1_4	285379.738	3591856.462	151.723
1_7	282869.14	3596547.712	149.183

1_1



Point ID: 1_1

Northing: 3592430.961 Meters

Easting: 281211.927 Meters

Orthometric Height: 166.072 Meters

Latitude: 32° 26' 51.21242" N

Longitude: 95° 19' 38.69903" W

Ellipsoid Height: 139.7354 Meters

1_10



Point ID: 1_10

Northing: 3601147.156 Meters

Easting: 284794.044 Meters

Orthometric Height: 131.917 Meters

Latitude: 32° 31' 36.56690" N

Longitude: 95° 17' 28.78235" W

Ellipsoid Height: 105.5427 Meters

1_13



Point ID: 1_13

Northing: 3601548.492 Meters

Easting: 279890.971 Meters

Orthometric Height: 131.89 Meters

Latitude: 32° 31' 46.12770" N

Longitude: 95° 20' 36.92008" W

Ellipsoid Height: 105.5561 Meters

1_4



Point ID: 1_4

Northing: 3591856.462 Meters

Easting: 285379.738 Meters

Orthometric Height: 151.723 Meters

Latitude: 32° 26' 35.49086" N

Longitude: 95° 16' 58.72857" W

Ellipsoid Height: 125.3646 Meters

1_7



Point ID: 1_7

Northing: 3596547.712 Meters

Easting: 282869.14 Meters

Orthometric Height: 149.183 Meters

Latitude: 32° 29' 05.96777" N

Longitude: 95° 18' 38.69166" W

Ellipsoid Height: 122.8327 Meters

Non-Vegetated Vertical Accuracy Checkpoints Bare Earth

The Map shows the overall distribution of the Non-Vegetated Vertical Accuracy Checkpoint, Bare Earth throughout the AOI. The following tables contain a list of the control using Easting, Northing, and Orthometric height. The coordinate system displayed is Universal Transverse Mercator 15N, North American Datum 1983 (2011), North American Vertical Datum of 1988, Geoid12B and using Meters for measurement.

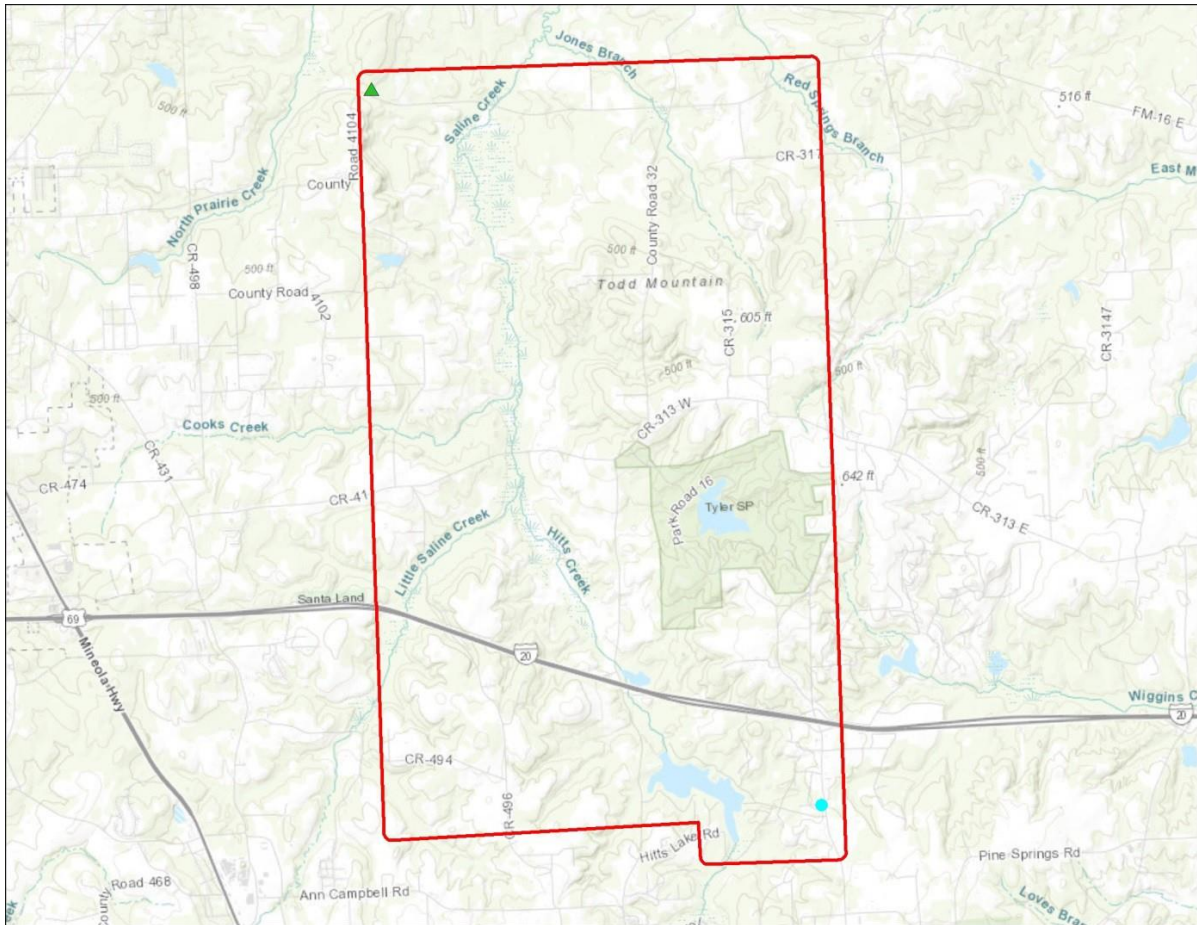


TABLE: Bare Earth

Point ID	Easting	Northing	Ortho
1_15	279946.598	3601609.982	136.564
1_8	282868.429	3596508.219	146.748

1_15



Point ID: 1_15

Northing: 3601609.982 Meters

Easting: 279946.598 Meters

Orthometric Height: 136.564 Meters

Latitude: 32° 31' 48.16268" N

Longitude: 95° 20' 34.84119" W

Ellipsoid Height: 110.229 Meters

1_8



Point ID: 1__8

Northing: 3596508.219 Meters

Easting: 282868.429 Meters

Orthometric Height: 146.748 Meters

Latitude: 32° 31' 48.16268" N

Longitude: 95° 20' 34.84119" W

Ellipsoid Height: 110.229 Meters

Non-Vegetated Vertical Accuracy Checkpoints Urban Terrain

The Map shows the overall distribution of the Non-Vegetated Vertical Accuracy Checkpoint, Urban Terrain throughout the AOI. The following tables contain a list of the control using Easting, Northing, and Orthometric height. The coordinate system displayed is Universal Transverse Mercator 15N, North American Datum 1983 (2011), North American Vertical Datum of 1988, Geoid12B and using Meters for measurement.

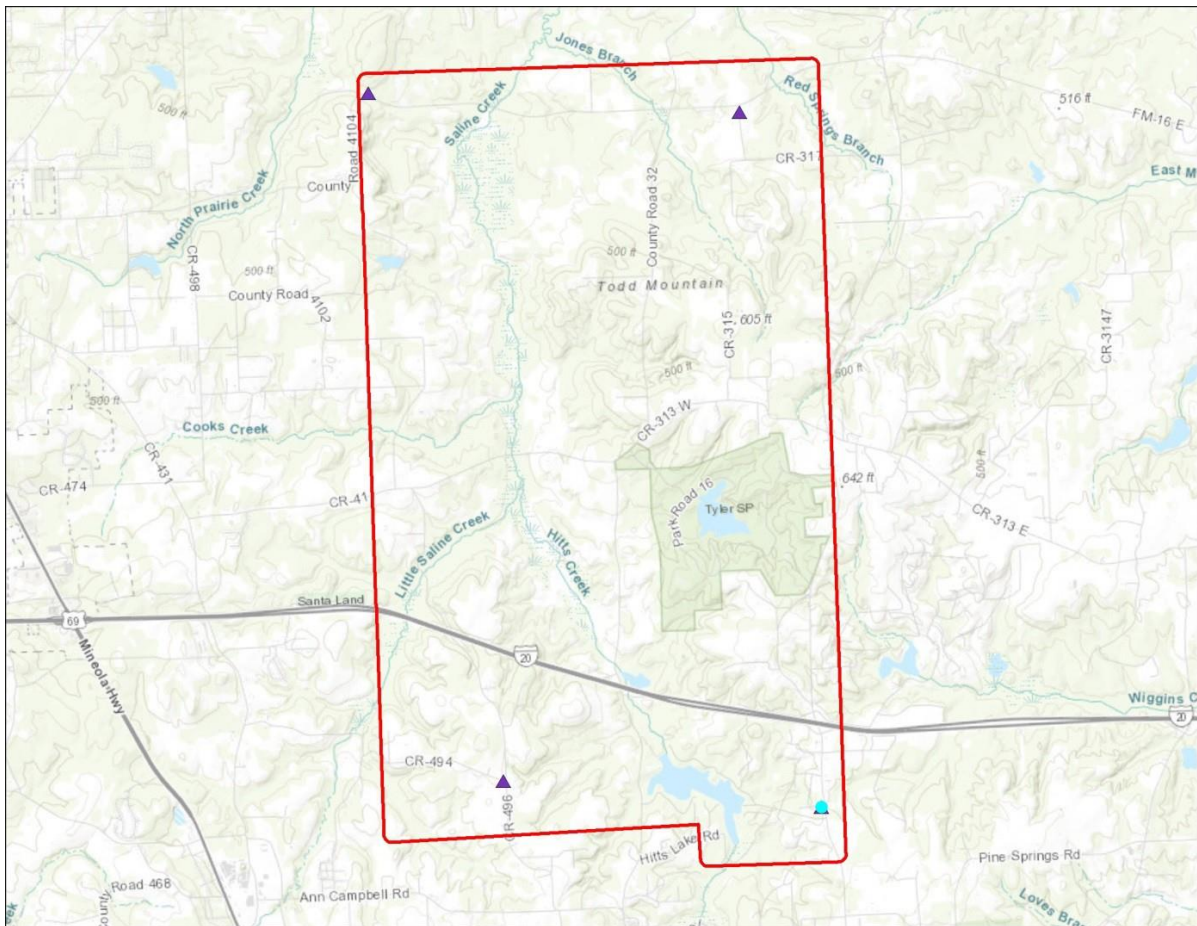


TABLE: Urban Terrain

Point ID	Easting	Northing	Ortho
1_12	284777.409	3601057.878	131.108
1_14	279908.495	3601584.212	133.112
1_2	281174.296	3592436.889	166.421
1_6	285337.994	3591857.32	152.165

1_12



Point ID: 1_12

Northing: 3601057.878 Meters

Easting: 284777.409 Meters

Orthometric Height: 131.108 Meters

Latitude: 32° 31' 33.65822" N

Longitude: 95° 17' 29.34597" W

Ellipsoid Height: 104.7354 Meters

1_14



Point ID: 1_14

Northing: 3601584.212 Meters

Easting: 279908.495 Meters

Orthometric Height: 133.112 Meters

Latitude: 32° 31' 47.29929" N

Longitude: 95° 20' 36.27895" W

Ellipsoid Height: 106.7769 Meters

1_2



Point ID: 1_2

Northing: 3592436.889 Meters

Easting: 281174.296 Meters

Orthometric Height: 166.421 Meters

Latitude: 32° 26' 51.37817" N

Longitude: 95° 19' 40.14405" W

Ellipsoid Height: 140.0853 Meters

1_6



Point ID: 1_6

Northing: 3591857.32 Meters

Easting: 285337.994 Meters

Orthometric Height: 152.165 Meters

Latitude: 32° 26' 35.48973" N

Longitude: 95° 17' 00.32674" W

Ellipsoid Height: 125.8065 Meters

Vegetated Vertical Accuracy Checkpoints Low Vegetation

The Map shows the overall distribution of the Vegetated Vertical Accuracy Checkpoint, Low Vegetation throughout the AOI. The following tables contain a list of the control using Easting, Northing, and Orthometric height. The coordinate system displayed is Universal Transverse Mercator 15N, North American Datum 1983 (2011), North American Vertical Datum of 1988, Geoid12B and using Meters for measurement.

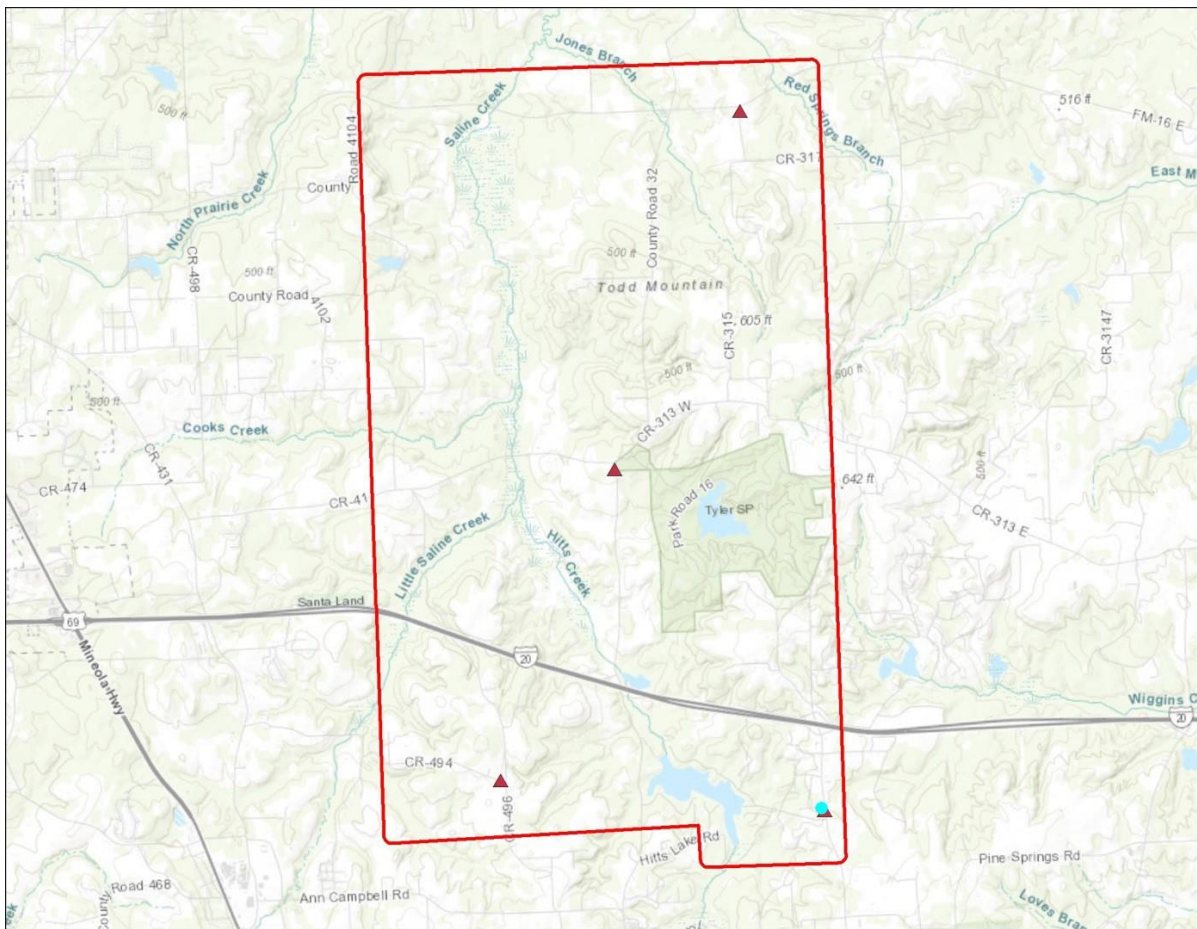


TABLE: Low Vegetation

Point ID	Easting	Northing	Ortho
1_11	284785.409	3601092.305	132.234
1_3	281139.015	3592454.86	166.478
1_5	285382.47	3591828.39	151.253
1_9	282872.29	3596468.079	144.192

1_11



Point ID: 1_11

Northing: 3601092.305 Meters

Easting: 284785.409 Meters

Orthometric Height: 132.234 Meters

Latitude: 32° 31' 34.78096" N

Longitude: 95° 17' 29.06790" W

Ellipsoid Height: 105.8605 Meters

1_3



Point ID: 1_3

Northing: 3592454.86 Meters

Easting: 281139.015 Meters

Orthometric Height: 166.478 Meters

Latitude: 32° 26' 51.93632" N

Longitude: 95° 19' 41.50923" W

Ellipsoid Height: 140.1423 Meters

1_5



Point ID: 1_5

Northing: 3591828.39 Meters

Easting: 285382.47 Meters

Orthometric Height: 151.253 Meters

Latitude: 32° 26' 34.58183" N

Longitude: 95° 16' 58.60105" W

Ellipsoid Height: 124.8949 Meters

1_9



Point ID: 1_9

Northing: 3596468.079 Meters

Easting: 282872.29 Meters

Orthometric Height: 144.192 Meters

Latitude: 32° 29' 03.38591" N

Longitude: 95° 18' 38.50501" W

Ellipsoid Height: 117.8422 Meters