



# LiDAR Ground Control Survey Report

USGS Lower Maumee 2016 LiDAR Project

Task Order Number: G16PC00022

January 2017

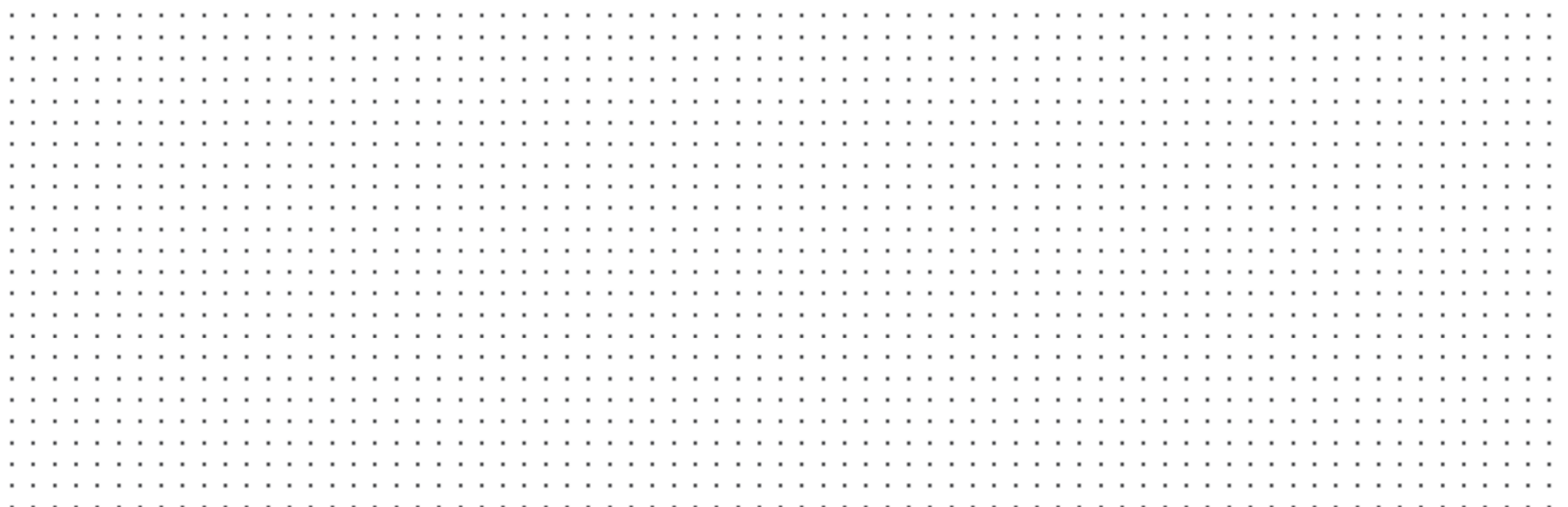
# LiDAR Ground Control Survey Report

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# Section 1: LiDAR Ground Control Survey Report

## Introduction

This report contains a comprehensive outline of the photogrammetric ground control survey that supported the USGS Lower Maumee 2016 LiDAR Project. All surveys were performed in compliance with the American Society for Photogrammetry and Remote Sensing (ASPRS) standards required to support new LiDAR data with 0.7 meter average point density and the U.S. Geological Survey National Geospatial Program LiDAR Base Specification Version 1.2.

## Project Area

The project area includes 2484 square miles in northwest Ohio that drains into Lake Erie.

## Purpose

The purpose of this survey was to establish three-dimensional coordinates for sixty-seven (67) new LiDAR control stations and one hundred forty-eight (148) new LiDAR quality control stations. Existing stations from previous survey efforts were utilized whenever possible. LiDAR control stations will be used as quality control for eventual LiDAR data with 0.7 meter average point density. Specifications for these point densities are outlined in the ASPRS Positional Accuracy Standards for Digital Geospatial Data (Edition 1, Version 1.0, November 2014).

## Date of Survey

The latest effort of ground control field operations took place on May 26, 2016.

## Monumentation

Woolpert field crews performed a field reconnaissance to verify the existence and suitability of preselected existing National Geodetic Survey (NGS) control stations. These existing control stations were utilized to ensure that quality x, y, and z coordinate values were computed for each of the newly established LiDAR quality control stations.

Recovery information sheets and photographs for the newly established photogrammetric control stations can be found in Section 4. A control diagram showing the ground control stations used to support this LiDAR mapping project can be found in Section 5 of this report. LiDAR quality control station information sheets and photographs were not documented.

## Methodology

### Real-Time Kinematic (RTK) GPS

For this particular field effort, Woolpert field crews utilized two (2) Woolpert-owned, Trimble Navigation R8 Model 3 series dual frequency GPS receivers. Field personnel generated RTK vectors through the use of Sierra Wireless Raven XT Code Division Multiple Access (CDMA) modems.

Using BARNES, C 351, E 182, HENRY 2, S24 A, W 350, Y 316 and Z 317 as the base stations, RTK observations were performed on all new LiDAR control points in order to collect data efficiently and accurately. The survey was conducted using a 1-second epoch rate, in a fixed solution RTK mode, with each observation lasting approximately 180 seconds. Each station was occupied twice to ensure the necessary horizontal and vertical accuracies were being met for this project. RTK surveys were performed where cellular phone coverage was available and where baseline distance accuracy was maintained.

### Static GPS

Due to the usage of multiple RTK base stations, base stations with accompanying measurements were not contiguous. These stations were linked together via concurrent static observations, allowing for one contiguous network. Continually Operating Reference Stations (CORS) were also incorporated into the dataset to strengthen the overall baseline network. Data from observation sessions typically lasted several hours, with each session utilizing a 5-second sync rate.

## Post-Processing and Adjustments

All static GPS observations were processed using Trimble Navigation's Trimble Business Center (TBC) 3.70 baseline processor with precise ephemeris. Both unconstrained and constrained adjustments were computed using trivial and nontrivial baselines. After an acceptable unconstrained least-squares adjustment was obtained, Woolpert performed a fully constrained least-squares adjustment by fixing the GPS network to existing NGS control stations with known coordinate data. Fixed solutions were obtained for all vector baselines.

During this project, the following stations were fixed during the constrained adjustment:

<b>3-D STATIONS</b>	
<b>Description</b>	<b>PID</b>
C 351	MC1678
E 182	MC0734
W 350	MC1644
Z 317	MC0984

<b>2-D STATIONS</b>	
<b>Description</b>	<b>PID</b>
HENRY 2	MC1753
S24 A	DL6925

1-D STATIONS	
Description	PID
BARNES	MC0622
Y 316	MC1011

## Datum Reference and Final Coordinates

All new horizontal GPS control was based on the Ohio State Plane Coordinate System (North Zone 3401), referenced to the North American Datum 1983, 2011 adjustment, expressed in U.S. Survey Feet. All vertical control was based on the North American Vertical Datum of 1988 (NAVD88) with GEOID12B applied to model the elevations, also expressed in U.S. Survey Feet. The coordinates for the ground control survey can be found in Section 2 of this report.

## Accuracy Statement

The GPS adjustment indicates that the survey control network meets or exceeds the standards set forth by ASPRS in support of LiDAR data with 0.7 meter average point density.



## Section 2: Ground Control Station Coordinate Listings

This section includes a complete listing of the final coordinates, orthometric heights, and ellipsoid heights for the USGS Lower Maumee 2016 LiDAR Project.

### USGS LOWER MAUMEE 2016 LiDAR CONTROL

*Horizontal Datum: NAD 83 (2011)*

*Vertical Datum: NAVD 88*

*Units: U.S. Survey Feet*

*State Plane Zone: Ohio North*

*Geoid Model: Geoid 12B*

*Coordinate System: Grid*

*Date: January 2017*

LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
1	598438.74	1453036.52	706.47	CONC RD	NEW
2	670947.32	1472734.81	723.33	CONC RD	NEW
3	580078.73	1488913.08	737.96	ASPHALT	NEW
4	646202.57	1505245.75	704.70	ASPHALT	NEW
5	693210.32	1522614.39	766.26	ASPHALT SW COR STOP BAR	NEW
6	728607.89	1548958.81	757.30	ASPHALT	NEW
7	634406.93	1542241.20	671.60	ASPHALT	NEW
8	524321.79	1562035.85	754.05	ASPHALT	NEW
9	571263.81	1561931.51	712.28	ASPHALT	NEW
10	666523.08	1575782.93	675.89	ASPHALT	NEW
11	733456.40	1591788.08	712.17	ASPHALT	NEW
12	614050.04	1611730.22	678.90	ASPHALT	NEW
13	598060.42	1535512.72	692.56	ASPHALT	NEW
14	546864.00	1529143.20	747.34	ASPHALT	NEW
15	563126.68	1601848.06	706.29	ASPHALT	NEW
16	630515.16	1489085.63	715.80	ASPHALT	NEW
17	526998.64	1614915.02	769.58	TENNIS COURT	NEW
18	608314.89	1581766.38	683.99	ASPHALT	NEW
17 (75211)	716446.03	1876769.64	609.98	COR CONC	EXISTING (ADJUSTED FROM HARN)
18 (75211)	726716.21	1886051.22	584.87	COR CONC	EXISTING (ADJUSTED FROM HARN)
19	700470.95	1555681.32	728.95	ASPHALT	NEW
20	709684.74	1614894.57	668.88	ASPHALT	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
21	580672.77	1641743.72	690.75	ASPHALT	NEW
22	550973.15	1651610.83	731.02	ASPHALT	NEW
23	519896.61	1677769.32	819.59	ASPHALT	NEW
24	670849.54	1628347.25	650.38	ASPHALT SE COR STOP BAR	NEW
25	628311.77	1515470.81	679.93	ASPHALT	NEW
26	593006.01	1512441.36	702.82	ASPHALT	NEW
27	552275.44	1714284.15	755.95	ASPHALT	NEW
28	574500.57	1681217.42	706.80	ASPHALT	NEW
29	624540.79	1664505.25	670.59	ASPHALT	NEW
30	688871.22	1684417.21	630.97	ASPHALT	NEW
31	749887.69	1651384.34	670.09	ASPHALT	NEW
32	747601.79	1687907.01	592.50	ASPHALT	NEW
33	717514.38	1664409.91	626.11	ASPHALT	NEW
34	654240.53	1674905.74	658.09	ASPHALT	NEW
35	722779.92	1717507.72	592.60	ASPHALT	NEW
36	710485.59	1733488.70	594.82	ASPHALT	NEW
37	728438.76	1757308.45	572.75	ASPHALT	NEW
38	709339.15	1780521.75	575.89	ASPHALT	NEW
39	709430.83	1803565.23	576.98	GRAVEL	NEW
40	675593.68	1734215.07	625.49	ASPHALT	NEW
41	675149.50	1790241.71	587.70	ASPHALT	NEW
42	636051.83	1770494.68	623.54	GRAVEL	NEW
43	650972.95	1717591.91	641.76	ASPHALT	NEW
44	691767.38	1771368.24	590.35	GRAVEL	NEW
45	606118.71	1711196.86	693.22	ASPHALT SE COR STOP BAR	NEW
46	624965.34	1740318.36	683.10	ASPHALT	NEW
47	586363.00	1732024.94	714.78	ASPHALT	NEW
48	585855.95	1779397.14	675.34	ASPHALT	NEW
49	614849.60	1797020.40	625.74	ASPHALT	NEW
50	592851.56	1833290.57	701.72	ASPHALT	NEW
51	582358.06	1873435.42	762.90	ASPHALT	NEW
52	579964.52	1816969.24	702.21	ASPHALT	NEW
53	614586.99	1860827.52	655.71	ASPHALT	NEW
54	639906.27	1817294.62	576.35	ASPHALT	NEW
55	620607.59	1838390.41	607.90	GRAVEL	NEW
56	647666.40	1793815.32	587.33	ASPHALT	NEW
57	681257.81	1910151.46	582.78	ASPHALT	NEW
58	682221.94	1902312.25	665.81	ASPHALT	NEW
59	695890.18	1873389.87	609.92	GRAVEL	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
60	685302.34	1879639.32	576.49	GRAVEL	NEW
61	678626.29	1889931.58	602.00	GRAVEL	NEW
62	677227.12	1869798.55	579.32	ASPHALT	NEW
63	685024.46	1828373.55	576.06	ASPHALT	NEW
64	671655.42	1849997.24	581.30	CONC	NEW
65	673444.07	1809724.76	579.47	ASPHALT	NEW
2001	596973.47	1452522.98	710.57	ASPHALT	NEW
2002	656155.42	1475094.03	735.70	ASPHALT	NEW
2003	582781.76	1490295.08	725.91	ASPHALT	NEW
2004	646245.59	1502708.54	698.32	ASPHALT	NEW
2005	687709.42	1537018.48	738.71	ASPHALT	NEW
2006	723313.16	1554266.79	755.63	ASPHALT	NEW
2007	632576.99	1542546.51	673.18	ASPHALT	NEW
2008	523607.93	1566782.91	752.10	ASPHALT	NEW
2009	573680.04	1567212.18	707.79	ASPHALT	NEW
2010	668617.08	1573665.41	675.14	ASPHALT	NEW
2011	733436.26	1602925.75	696.42	ASPHALT	NEW
2012	618958.07	1615376.73	683.66	ASPHALT	NEW
2013	598004.91	1539474.13	690.58	ASPHALT	NEW
2014	546764.82	1534402.96	746.84	ASPHALT	NEW
2015	565055.70	1601873.06	705.75	ASPHALT	NEW
2016	631219.45	1486465.17	720.02	ASPHALT	NEW
2017	525884.72	1614148.55	771.34	ASPHALT	NEW
2018	607631.84	1583295.91	683.49	ASPHALT	NEW
2019	701939.45	1554222.33	723.50	ASPHALT	NEW
2020	711123.07	1615353.72	671.24	CONC RD	NEW
2021	580534.17	1645982.29	690.76	ASPHALT	NEW
2022	551423.47	1651062.96	728.61	ASPHALT	NEW
2023	526949.45	1685077.50	807.05	ASPHALT	NEW
2024	675219.46	1629199.02	648.13	ASPHALT	NEW
2025	629371.13	1515414.75	681.89	ASPHALT	NEW
2026	598313.31	1511796.02	683.29	ASPHALT	NEW
2027	555787.56	1710632.72	749.97	ASPHALT	NEW
2028	574638.61	1677338.84	702.70	ASPHALT	NEW
2029	625274.67	1664126.50	670.31	ASPHALT	NEW
2030	692626.09	1684724.52	627.04	ASPHALT	NEW
2031	745578.96	1642583.91	660.76	ASPHALT	NEW
2032	746856.72	1687960.41	592.85	ASPHALT	NEW
2033	712227.15	1664355.43	626.24	ASPHALT	NEW
2034	655182.17	1677394.37	656.87	ASPHALT	NEW
2035	724529.95	1717500.26	590.53	ASPHALT	NEW
2036	710908.73	1727805.77	596.91	ASPHALT	NEW



LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
2037	730440.04	1757251.05	572.24	ASPHALT	NEW
2038	704990.18	1781716.60	576.88	GRAVEL	NEW
2039	706221.90	1801531.18	574.77	GRAVEL	NEW
2040	673745.93	1731241.57	626.77	ASPHALT	NEW
2041	677747.67	1786589.00	591.72	ASPHALT	NEW
2042	639985.85	1776056.12	613.64	ASPHALT	NEW
2043	651012.47	1715639.75	651.71	ASPHALT	NEW
2044	687511.23	1770726.25	592.65	ASPHALT	NEW
2045	606141.00	1714973.82	702.68	ASPHALT	NEW
2046	623531.47	1738134.12	695.39	ASPHALT	NEW
2047	590397.27	1731531.61	723.52	ASPHALT	NEW
2048	584320.94	1774325.56	682.52	ASPHALT	NEW
2049	622414.22	1793784.26	622.05	ASPHALT	NEW
2050	594326.47	1836180.80	680.23	ASPHALT	NEW
2051	588912.34	1864448.51	778.50	GRAVEL	NEW
2052	591453.44	1815915.99	642.24	ASPHALT	NEW
2053	608237.47	1860632.51	693.15	ASPHALT	NEW
2054	637327.93	1820292.06	577.67	ASPHALT	NEW
2055	626446.31	1843910.79	594.42	ASPHALT	NEW
2056	648633.57	1802258.09	582.31	ASPHALT	NEW
2057	679120.73	1909422.63	585.03	ASPHALT	NEW
2058	683158.91	1897306.24	605.35	GRAVEL	NEW
2059	693504.58	1877364.83	590.50	GRAVEL	NEW
2060	685151.99	1881544.25	583.05	ASPHALT	NEW
2061	680312.55	1892544.16	599.25	ASPHALT	NEW
2062	679634.27	1870105.75	607.26	ASPHALT	NEW
2063	685214.46	1817455.12	576.15	GRAVEL	NEW
2064	670379.64	1851279.17	576.40	CONC	NEW
2065	673500.60	1809230.41	581.35	CONC	NEW
2066	582231.81	1528748.75	705.95	ASPHALT	NEW
2067	555338.13	1567128.07	722.23	ASPHALT	NEW
2068	597387.00	1616036.72	693.69	ASPHALT	NEW
2069	667057.60	1520824.93	711.44	ASPHALT	NEW
2070	723226.94	1527759.93	777.59	ASPHALT	NEW
2071	666733.89	1544626.01	682.03	ASPHALT	NEW
2072	650668.42	1569459.08	671.53	ASPHALT	NEW
2073	693793.89	1587071.08	674.07	ASPHALT	NEW
2074	652983.71	1623839.04	662.99	ASPHALT	NEW
2075	564200.82	1509566.94	735.73	ASPHALT	NEW
2076	544272.11	1598868.28	723.91	ASPHALT	NEW
2077	600968.37	1673781.97	676.42	ASPHALT	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
2078	678513.42	1660068.64	643.49	ASPHALT	NEW
2079	722898.02	1642362.56	636.48	ASPHALT	NEW
2080	674707.57	1765408.52	602.68	ASPHALT	NEW
2081	656180.37	1760195.30	612.57	ASPHALT	NEW
2082	618930.02	1770178.67	650.83	ASPHALT	NEW
2083	616344.37	1833149.78	618.92	ASPHALT	NEW
3001	596878.07	1452593.31	708.48	WOODS	NEW
3002	656195.76	1475043.27	737.55	GRASS	NEW
3003	582713.11	1490368.14	723.41	WOODS	NEW
3004	646179.36	1502585.72	697.27	WOODS	NEW
3005	687700.21	1536977.20	737.21	BRUSH	NEW
3006	723371.50	1554219.22	753.96	WOODS	NEW
3007	632516.33	1542576.30	671.30	GRASS	NEW
3008	523673.89	1566680.26	750.76	WOODS	NEW
3009	573813.99	1567174.35	706.62	GRASS	NEW
3010	668680.23	1573526.35	674.97	WOODS	NEW
3011	733335.12	1602795.89	693.04	TALL GRASS	NEW
3012	618899.14	1615368.71	682.57	TALL GRASS	NEW
3013	598046.54	1539469.60	689.57	BRUSH	NEW
3014	546704.96	1534496.25	745.52	WOODS	NEW
3015	565054.04	1601912.98	704.38	TALL GRASS	NEW
3016	631222.33	1486510.56	718.88	TALL GRASS	NEW
3017	525665.72	1614207.06	770.81	WOODS	NEW
3018	607568.06	1583344.53	681.01	WOODS	NEW
3019	701914.01	1554156.30	706.07	WOODS	NEW
3020	711052.37	1615370.40	672.49	WOODS	NEW
3021	580578.63	1645915.39	689.37	TALL GRASS	NEW
3022	551537.58	1651052.89	727.35	BARE GROUND	NEW
3023	527030.83	1685054.51	805.79	WOODS	NEW
3024	675146.09	1628954.67	645.83	BRUSH	NEW
3025	629057.57	1515743.13	680.47	WOODS	NEW
3026	598243.21	1511828.24	677.12	WOODS	NEW
3027	555856.91	1710593.92	748.80	GRASS	NEW
3028	574540.04	1677259.22	701.63	WOODS	NEW
3029	625312.75	1664070.01	670.83	GRASS	NEW
3030	692650.15	1684802.67	624.35	BRUSH	NEW
3031	745578.01	1642526.57	661.86	GRASS	NEW
3032	746875.72	1687816.16	592.76	BRUSH	NEW
3033	712338.58	1664332.04	633.09	GRASS	NEW
3034	655223.23	1677425.06	655.09	TALL GRASS	NEW
3035	724467.76	1717604.61	591.41	GRASS	NEW
3036	710883.36	1727735.45	597.03	BRUSH	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Northing (USFT)	Easting (USFT)	Elevation (USFT)	Station Description	Station Condition
3037	730211.90	1757014.11	570.22	TREES	NEW
3038	705027.06	1781632.77	575.87	BRUSH	NEW
3039	706173.68	1801507.13	574.70	BRUSH	NEW
3040	673743.61	1731114.96	627.24	GRASS	NEW
3041	677748.62	1786666.27	590.09	GRASS	NEW
3042	640100.46	1776006.82	612.14	TREES	NEW
3043	651059.74	1715673.34	652.16	BRUSH	NEW
3044	687471.04	1770957.57	582.23	BRUSH	NEW
3045	606075.29	1714998.57	701.38	TALL GRASS	NEW
3046	623491.56	1738089.42	694.50	BRUSH	NEW
3047	590424.26	1730858.07	712.83	TALL GRASS	NEW
3048	584424.15	1774626.55	679.27	TREES	NEW
3049	622445.91	1793723.59	619.81	BRUSH	NEW
3050	594201.41	1836318.85	680.24	FOREST	NEW
3051	588914.79	1864340.16	779.59	BRUSH	NEW
3052	591652.57	1815594.19	636.08	TREES	NEW
3053	608167.50	1860680.02	690.40	BRUSH	NEW
3054	637276.54	1820392.51	575.06	BRUSH	NEW
3055	626454.91	1843873.04	593.62	BRUSH	NEW
3056	648648.10	1802203.24	581.27	BRUSH	NEW
3057	679108.08	1909335.84	585.56	BRUSH	NEW
3058	683144.87	1897459.43	605.75	TREES	NEW
3059	693830.08	1877538.64	592.64	BRUSH	NEW
3060	685226.65	1881513.56	582.05	GRASS	NEW
3061	679898.24	1892627.58	602.55	TREES	NEW
3062	679570.18	1869816.73	600.17	TREES	NEW
3063	685272.12	1817549.86	575.67	GRASS	NEW
3064	670329.88	1851269.27	576.58	GRASS	NEW
3065	673502.42	1809170.91	581.14	BRUSH	NEW

Geodetic Control Stations and Geodetic Control Station Checks:				
Station Name	Northing	Easting	Elevation	PID
	(USFT)	(USFT)	(USFT)	
24 1109	591853.390	1442897.220	706.692	DG7166
C 182	745368.389	1687954.210	592.545	MC0736
G 181	680290.154	1652091.801	642.092	MC0672
J 317	670341.219	1861761.764	585.294	MC0994
K 16	688715.271	1517513.027	770.290	MD0054
N 316	690559.694	1738965.437	600.130	MC1022
PENINSULA	671262.193	1867046.230	589.238	MC1253
R 344	532987.552	1765323.079	766.029	MC1637
RIALTO	726194.160	1759679.053	571.849	MC1815
S 170	629207.811	1621620.686	674.756	MC0532
U 317	679503.574	1889829.141	601.436	MC0981
YORSAN	592597.712	1856967.819	750.983	AB6124

Woolpert Base Stations:				
Station Name	Northing	Easting	Elevation	PID
	(USFT)	(USFT)	(USFT)	
BARNES	613780.651	1562118.623	680.944	MC0622
C 351	628355.659	1654038.598	674.995	MC1678
E 182	740193.833	1688030.652	594.070	MC0734
HENRY 2	642753.190	1589218.503	662.881	MC1753
S24 A	593954.412	1822080.574	657.142	DL6925
W 350	492591.492	1641715.997	790.051	MC1644
Y 316	676468.936	1797173.945	584.126	MC1011
Z 317	683662.663	1905032.047	581.721	MC0984

## USGS LOWER MAUMEE 2017 LiDAR CONTROL

Horizontal Datum: NAD 83 (2011)  
Vertical Datum: NAVD 88  
Units: U.S. Survey Feet  
State Plane Zone: Ohio North  
Geoid Model: Geoid 12B  
Coordinate System: Geographic  
Date: January 2017

LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height	Station Description	Station Condition
			(USFT)		
1	N41°17'38.55589"	W84°22'33.59868"	593.11	CONC RD	NEW
2	N41°29'38.92092"	W84°18'35.29808"	609.84	CONC RD	NEW
3	N41°14'44.54167"	W84°14'38.86451"	623.47	ASPHALT	NEW
4	N41°25'40.93039"	W84°11'21.85483"	589.86	ASPHALT	NEW
5	N41°33'28.55257"	W84°07'45.41141"	651.40	ASPHALT SW STOP BAR	NEW
6	N41°39'22.93580"	W84°02'07.13315"	642.09	ASPHALT	NEW
7	N41°23'51.20140"	W84°03'13.50707"	555.80	ASPHALT	NEW
8	N41°05'47.03796"	W83°58'29.38031"	637.70	ASPHALT	NEW
9	N41°13'30.78519"	W83°58'41.13391"	595.84	ASPHALT	NEW
10	N41°29'14.14583"	W83°56'00.37011"	559.90	ASPHALT	NEW
11	N41°40'17.89925"	W83°52'43.99947"	596.46	ASPHALT	NEW
12	N41°20'41.32286"	W83°47'57.81804"	562.48	ASPHALT	NEW
13	N41°17'50.94443"	W84°04'33.16420"	576.70	ASPHALT	NEW
14	N41°09'24.02236"	W84°05'44.33029"	631.63	ASPHALT	NEW
15	N41°12'16.74895"	W83°49'57.16818"	589.54	ASPHALT	NEW
16	N41°23'02.81768"	W84°14'49.83249"	601.32	ASPHALT	NEW
17	N41°06'21.74589"	W83°46'59.27510"	652.97	TENNIS COURT	NEW
18	N41°19'40.06789"	W83°54'29.41188"	567.47	ASPHALT	NEW
17 (75211)	N41°37'57.52200"	W82°50'07.97951"	493.19	COR CONC	EXISTING (ADJUSTED FROM HARN)
18 (75211)	N41°39'39.32171"	W82°48'06.22102"	468.14	COR CONC	EXISTING (ADJUSTED FROM HARN)
19	N41°34'46.15254"	W84°00'32.17439"	613.36	ASPHALT	NEW
20	N41°36'26.56821"	W83°47'34.92360"	553.00	ASPHALT	NEW
21	N41°15'15.79736"	W83°41'18.38147"	574.41	ASPHALT	NEW
22	N41°10'23.67449"	W83°39'04.06940"	614.73	ASPHALT	NEW
23	N41°05'19.90045"	W83°33'17.10597"	703.65	ASPHALT	NEW
24	N41°30'04.85159"	W83°44'30.57581"	534.44	ASPHALT SE STOP BAR	NEW
25	N41°22'46.12976"	W84°09'03.20162"	564.68	ASPHALT	NEW
26	N41°16'56.78404"	W84°09'34.12285"	587.54	ASPHALT	NEW
27	N41°10'43.90682"	W83°25'24.71787"	640.21	ASPHALT	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height (USFT)	Station Description	Station Condition
28	N41°14'19.80932"	W83°32'40.61763"	590.85	ASPHALT	NEW
29	N41°22'32.16217"	W83°36'27.68137"	554.66	ASPHALT	NEW
30	N41°33'10.13084"	W83°32'16.55186"	514.98	ASPHALT	NEW
31	N41°43'08.78896"	W83°39'41.67420"	554.22	ASPHALT	NEW
32	N41°42'50.73608"	W83°31'39.75693"	476.46	ASPHALT	NEW
33	N41°37'50.66123"	W83°36'44.48591"	510.21	ASPHALT	NEW
34	N41°27'26.86605"	W83°34'16.05038"	542.20	ASPHALT	NEW
35	N41°38'48.78647"	W83°25'06.04145"	476.32	ASPHALT	NEW
36	N41°36'48.93801"	W83°21'33.96022"	478.40	ASPHALT	NEW
37	N41°39'48.50332"	W83°16'22.48136"	456.11	ASPHALT	NEW
38	N41°36'41.73266"	W83°11'14.67277"	459.15	ASPHALT	NEW
39	N41°36'44.32278"	W83°06'11.33141"	460.18	GRAVEL	NEW
40	N41°31'04.29737"	W83°21'19.89218"	509.12	ASPHALT	NEW
41	N41°31'04.68962"	W83°09'03.35827"	471.03	ASPHALT	NEW
42	N41°24'36.87359"	W83°13'18.68472"	507.27	GRAVEL	NEW
43	N41°26'59.38645"	W83°24'55.00690"	525.59	ASPHALT	NEW
44	N41°33'47.40265"	W83°13'13.25980"	473.70	GRAVEL	NEW
45	N41°19'35.56253"	W83°26'12.65523"	577.28	ASPHALT SE STOP BAR	NEW
46	N41°22'44.68407"	W83°19'53.31869"	567.00	ASPHALT	NEW
47	N41°16'22.49427"	W83°21'37.11106"	599.11	ASPHALT	NEW
48	N41°16'21.63913"	W83°11'16.65448"	560.28	ASPHALT	NEW
49	N41°21'09.41587"	W83°07'28.57275"	509.85	ASPHALT	NEW
50	N41°17'34.36125"	W82°59'31.35432"	585.96	ASPHALT	NEW
51	N41°15'52.58467"	W82°50'44.88550"	647.48	ASPHALT	NEW
52	N41°15'26.06621"	W83°03'04.10492"	586.80	ASPHALT	NEW
53	N41°21'10.49621"	W82°53'31.88367"	539.71	ASPHALT	NEW
54	N41°25'18.33089"	W83°03'04.80602"	459.94	ASPHALT	NEW
55	N41°22'08.88099"	W82°58'26.52005"	491.73	GRAVEL	NEW
56	N41°26'33.42082"	W83°08'13.74236"	470.86	ASPHALT	NEW
57	N41°32'10.90786"	W82°42'47.25065"	466.40	ASPHALT	NEW
58	N41°32'20.23135"	W82°44'30.36643"	549.36	ASPHALT	NEW
59	N41°34'34.30607"	W82°50'51.40767"	493.19	GRAVEL	NEW
60	N41°32'49.93806"	W82°49'28.66299"	459.86	GRAVEL	NEW
61	N41°31'44.33581"	W82°47'13.01519"	485.48	GRAVEL	NEW
62	N41°31'29.77382"	W82°51'37.64490"	462.71	ASPHALT	NEW
63	N41°32'44.76358"	W83°00'42.85751"	459.31	ASPHALT	NEW
64	N41°30'33.83621"	W82°55'57.60877"	464.66	CONC	NEW
65	N41°30'49.19849"	W83°04'47.09577"	462.77	ASPHALT	NEW
2001	N41°17'23.97229"	W84°22'39.91174"	597.24	ASPHALT	NEW
2002	N41°27'13.28824"	W84°18'00.29068"	621.94	ASPHALT	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height	Station Description	Station Condition
			(USFT)		
2003	N41°15'11.51692"	W84°14'21.48138"	611.37	ASPHALT	NEW
2004	N41°25'40.86848"	W84°11'55.16728"	583.56	ASPHALT	NEW
2005	N41°32'36.82847"	W84°04'34.66684"	623.39	ASPHALT	NEW
2006	N41°38'31.55115"	W84°00'56.00676"	640.25	ASPHALT	NEW
2007	N41°23'33.17745"	W84°03'09.07412"	557.37	ASPHALT	NEW
2008	N41°05'40.77380"	W83°57'27.22828"	635.69	ASPHALT	NEW
2009	N41°13'55.53461"	W83°57'32.56289"	591.27	ASPHALT	NEW
2010	N41°29'34.48715"	W83°56'28.64424"	559.17	ASPHALT	NEW
2011	N41°40'19.41422"	W83°50'17.25582"	580.65	ASPHALT	NEW
2012	N41°21'30.34536"	W83°47'10.96259"	567.31	ASPHALT	NEW
2013	N41°17'51.09998"	W84°03'41.25847"	574.62	ASPHALT	NEW
2014	N41°09'23.98763"	W84°04'35.55374"	630.99	ASPHALT	NEW
2015	N41°12'35.81087"	W83°49'57.22673"	589.01	ASPHALT	NEW
2016	N41°23'09.25488"	W84°15'24.38929"	605.64	ASPHALT	NEW
2017	N41°06'10.62888"	W83°47'09.07237"	654.73	ASPHALT	NEW
2018	N41°19'33.56336"	W83°54'09.22183"	566.95	ASPHALT	NEW
2019	N41°35'00.40899"	W84°00'51.70448"	607.95	ASPHALT	NEW
2020	N41°36'40.84419"	W83°47'29.16055"	555.36	CONC RD	NEW
2021	N41°15'14.99494"	W83°40'22.86600"	574.46	ASPHALT	NEW
2022	N41°10'28.05221"	W83°39'11.31110"	612.31	ASPHALT	NEW
2023	N41°06'30.44750"	W83°31'42.75235"	691.16	ASPHALT	NEW
2024	N41°30'48.14206"	W83°44'20.19842"	532.21	ASPHALT	NEW
2025	N41°22'56.58430"	W84°09'04.19991"	566.65	ASPHALT	NEW
2026	N41°17'49.09273"	W84°09'43.89921"	568.03	ASPHALT	NEW
2027	N41°11'18.22293"	W83°26'12.96218"	634.20	ASPHALT	NEW
2028	N41°14'20.71106"	W83°33'31.40644"	586.72	ASPHALT	NEW
2029	N41°22'39.36511"	W83°36'32.77152"	554.38	ASPHALT	NEW
2030	N41°33'47.26211"	W83°32'13.09742"	511.05	ASPHALT	NEW
2031	N41°42'25.05144"	W83°41'36.93003"	544.91	ASPHALT	NEW
2032	N41°42'43.38200"	W83°31'38.93717"	476.81	ASPHALT	NEW
2033	N41°36'58.42241"	W83°36'44.31538"	510.34	ASPHALT	NEW
2034	N41°27'36.46967"	W83°33'43.51870"	540.97	ASPHALT	NEW
2035	N41°39'06.07430"	W83°25'06.38242"	474.25	ASPHALT	NEW
2036	N41°36'52.55838"	W83°22'48.82809"	480.54	ASPHALT	NEW
2037	N41°40'08.26930"	W83°16'23.47134"	455.60	ASPHALT	NEW
2038	N41°35'58.85999"	W83°10'58.49528"	460.15	GRAVEL	NEW
2039	N41°36'12.48037"	W83°06'37.81276"	457.99	GRAVEL	NEW
2040	N41°30'45.75246"	W83°21'58.73781"	510.43	ASPHALT	NEW
2041	N41°31'30.08676"	W83°09'51.63457"	475.04	ASPHALT	NEW
2042	N41°25'16.19024"	W83°12'06.11314"	497.30	ASPHALT	NEW
2043	N41°26'59.57373"	W83°25'20.64687"	535.56	ASPHALT	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height (USFT)	Station Description	Station Condition
2044	N41°33'05.30132"	W83°13'21.24091"	476.01	ASPHALT	NEW
2045	N41°19'36.18069"	W83°25'23.15475"	586.73	ASPHALT	NEW
2046	N41°22'30.31070"	W83°20'21.78908"	579.31	ASPHALT	NEW
2047	N41°17'02.30554"	W83°21'44.09401"	607.80	ASPHALT	NEW
2048	N41°16'06.07208"	W83°12'22.91051"	567.51	ASPHALT	NEW
2049	N41°22'23.92478"	W83°08'11.73004"	506.01	ASPHALT	NEW
2050	N41°17'49.09342"	W82°58'53.59742"	564.44	ASPHALT	NEW
2051	N41°16'56.97619"	W82°52'42.94175"	662.91	GRAVEL	NEW
2052	N41°17'19.51636"	W83°03'18.85326"	526.62	ASPHALT	NEW
2053	N41°20'07.75170"	W82°53'34.06579"	577.24	ASPHALT	NEW
2054	N41°24'53.04187"	W83°02'25.25134"	461.30	ASPHALT	NEW
2055	N41°23'06.85950"	W82°57'14.51464"	478.16	ASPHALT	NEW
2056	N41°26'43.57114"	W83°06'22.97435"	465.82	ASPHALT	NEW
2057	N41°31'49.77583"	W82°42'56.76473"	468.66	ASPHALT	NEW
2058	N41°32'29.34623"	W82°45'36.23162"	488.85	GRAVEL	NEW
2059	N41°34'10.89004"	W82°49'58.98785"	473.81	GRAVEL	NEW
2060	N41°32'48.52187"	W82°49'03.60312"	466.43	ASPHALT	NEW
2061	N41°32'01.07952"	W82°46'38.73578"	482.74	ASPHALT	NEW
2062	N41°31'53.56880"	W82°51'33.73651"	490.63	ASPHALT	NEW
2063	N41°32'45.98288"	W83°03'06.46208"	459.40	GRAVEL	NEW
2064	N41°30'21.29408"	W82°55'40.67692"	459.77	CONC	NEW
2065	N41°30'49.72446"	W83°04'53.59878"	464.65	CONC	NEW
2066	N41°15'13.35621"	W84°05'57.96559"	590.21	ASPHALT	NEW
2067	N41°10'54.31251"	W83°57'29.64982"	605.70	ASPHALT	NEW
2068	N41°17'57.33031"	W83°46'58.14785"	577.19	ASPHALT	NEW
2069	N41°29'09.87775"	W84°08'02.50062"	596.35	ASPHALT	NEW
2070	N41°38'26.00349"	W84°06'45.03947"	662.94	ASPHALT	NEW
2071	N41°29'10.96844"	W84°02'49.74379"	566.40	ASPHALT	NEW
2072	N41°26'36.48543"	W83°57'19.97462"	555.49	ASPHALT	NEW
2073	N41°33'45.35387"	W83°53'37.79388"	558.13	ASPHALT	NEW
2074	N41°27'07.71441"	W83°45'26.43346"	546.93	ASPHALT	NEW
2075	N41°12'11.67686"	W84°10'04.55166"	620.58	ASPHALT	NEW
2076	N41°09'10.01926"	W83°50'32.35214"	607.17	ASPHALT	NEW
2077	N41°18'40.41835"	W83°34'22.20210"	560.45	ASPHALT	NEW
2078	N41°31'24.81916"	W83°37'35.01592"	527.63	ASPHALT	NEW
2079	N41°38'40.96595"	W83°41'35.75682"	520.62	ASPHALT	NEW
2080	N41°30'58.36484"	W83°14'29.74764"	486.10	ASPHALT	NEW
2081	N41°27'54.87731"	W83°15'36.15249"	496.11	ASPHALT	NEW
2082	N41°21'47.68308"	W83°13'20.97046"	534.92	ASPHALT	NEW
2083	N41°21'26.47199"	W82°59'34.93869"	502.80	ASPHALT	NEW
3001	N41°17'23.04479"	W84°22'38.96378"	595.14	WOODS	NEW



LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height	Station Description	Station Condition
			(USFT)		
3002	N41°27'13.67630"	W84°18'00.96809"	623.79	GRASS	NEW
3003	N41°15'10.85317"	W84°14'20.50710"	608.86	WOODS	NEW
3004	N41°25'40.19055"	W84°11'56.76234"	582.51	WOODS	NEW
3005	N41°32'36.73010"	W84°04'35.20745"	621.90	BRUSH	NEW
3006	N41°38'32.11932"	W84°00'56.64657"	638.59	WOODS	NEW
3007	N41°23'32.58352"	W84°03'08.66919"	555.49	GRASS	NEW
3008	N41°05'41.40853"	W83°57'28.58328"	634.34	WOODS	NEW
3009	N41°13'56.85169"	W83°57'33.08736"	590.11	GRASS	NEW
3010	N41°29'35.08832"	W83°56'30.48503"	559.01	WOODS	NEW
3011	N41°40'18.39542"	W83°50'18.94621"	577.28	TALL GRASS	NEW
3012	N41°21'29.76197"	W83°47'11.05632"	566.22	TALL GRASS	NEW
3013	N41°17'51.51041"	W84°03'41.32748"	573.62	BRUSH	NEW
3014	N41°09'23.41286"	W84°04'34.32012"	629.67	WOODS	NEW
3015	N41°12'35.80050"	W83°49'56.70419"	587.63	TALL GRASS	NEW
3016	N41°23'09.29242"	W84°15'23.79470"	604.50	TALL GRASS	NEW
3017	N41°06'08.47368"	W83°47'08.26605"	654.21	WOODS	NEW
3018	N41°19'32.94097"	W83°54'08.57124"	564.47	WOODS	NEW
3019	N41°35'00.14635"	W84°00'52.56743"	590.52	WOODS	NEW
3020	N41°36'40.14815"	W83°47'28.92710"	556.61	WOODS	NEW
3021	N41°15'15.42526"	W83°40'23.74975"	573.08	TALL GRASS	NEW
3022	N41°10'29.17831"	W83°39'11.46249"	611.05	BARE GROUND	NEW
3023	N41°06'31.24890"	W83°31'43.06524"	689.90	WOODS	NEW
3024	N41°30'47.38288"	W83°44'23.39640"	529.91	BRUSH	NEW
3025	N41°22'53.54814"	W84°08'59.81499"	565.21	WOODS	NEW
3026	N41°17'48.40629"	W84°09'43.45975"	561.87	WOODS	NEW
3027	N41°11'18.90399"	W83°26'13.47943"	633.03	GRASS	NEW
3028	N41°14'19.72760"	W83°33'32.43289"	585.66	WOODS	NEW
3029	N41°22'39.73421"	W83°36'33.51885"	554.90	GRASS	NEW
3030	N41°33'47.50903"	W83°32'12.07318"	508.36	BRUSH	NEW
3031	N41°42'25.03433"	W83°41'37.68564"	546.01	GRASS	NEW
3032	N41°42'43.55285"	W83°31'40.84194"	476.72	BRUSH	NEW
3033	N41°36'59.52029"	W83°36'44.64201"	517.20	GRASS	NEW
3034	N41°27'36.87893"	W83°33'43.12211"	539.19	TALL GRASS	NEW
3035	N41°39'05.47084"	W83°25'04.99940"	475.13	GRASS	NEW
3036	N41°36'52.30069"	W83°22'49.75046"	480.66	BRUSH	NEW
3037	N41°40'05.99473"	W83°16'26.56656"	453.59	TREES	NEW
3038	N41°35'59.21780"	W83°10'59.60239"	459.15	BRUSH	NEW
3039	N41°36'12.00226"	W83°06'38.12487"	457.92	BRUSH	NEW
3040	N41°30'45.71712"	W83°22'00.40155"	510.91	GRASS	NEW
3041	N41°31'30.10200"	W83°09'50.61880"	473.41	GRASS	NEW
3042	N41°25'17.31867"	W83°12'06.77230"	495.80	TREES	NEW

LiDAR Control and/or Quality Control Stations:					
Station Name	Latitude	Longitude	Height	Station Description	Station Condition
			(USFT)		
3043	N41°27'00.04420"	W83°25'20.21240"	536.00	BRUSH	NEW
3044	N41°33'04.92314"	W83°13'18.19412"	465.59	BRUSH	NEW
3045	N41°19'35.53406"	W83°25'22.82123"	585.44	TALL GRASS	NEW
3046	N41°22'29.91219"	W83°20'22.37041"	578.42	BRUSH	NEW
3047	N41°17'02.50628"	W83°21'52.91978"	597.11	TALL GRASS	NEW
3048	N41°16'07.11584"	W83°12'18.97994"	564.25	TREES	NEW
3049	N41°22'24.23354"	W83°08'12.52875"	503.78	BRUSH	NEW
3050	N41°17'47.86530"	W82°58'51.77977"	564.46	FOREST	NEW
3051	N41°16'56.99579"	W82°52'44.36103"	664.00	BRUSH	NEW
3052	N41°17'21.46359"	W83°03'23.08528"	520.45	TREES	NEW
3053	N41°20'07.06244"	W82°53'33.43884"	574.49	BRUSH	NEW
3054	N41°24'52.54033"	W83°02'23.92877"	458.69	BRUSH	NEW
3055	N41°23'06.94251"	W82°57'15.01037"	477.37	BRUSH	NEW
3056	N41°26'43.71091"	W83°06'23.69590"	464.78	BRUSH	NEW
3057	N41°31'49.64874"	W82°42'57.90547"	469.19	BRUSH	NEW
3058	N41°32'29.21205"	W82°45'34.21666"	489.25	TREES	NEW
3059	N41°34'14.11253"	W82°49'56.71763"	475.95	BRUSH	NEW
3060	N41°32'49.25844"	W82°49'04.01035"	465.43	GRASS	NEW
3061	N41°31'56.98874"	W82°46'37.62165"	486.04	TREES	NEW
3062	N41°31'52.92384"	W82°51'37.53312"	483.54	TREES	NEW
3063	N41°32'46.55846"	W83°03'05.22090"	458.91	GRASS	NEW
3064	N41°30'20.80203"	W82°55'40.80391"	459.95	GRASS	NEW
3065	N41°30'49.73852"	W83°04'54.38104"	464.44	BRUSH	NEW

Geodetic Control Stations and Geodetic Control Station Checks:				
Station Name	Latitude	Longitude	Height	PID
			(USFT)	
24 1109	N41°16'31.32794"	W84°24'44.50999"	593.841	DG7166
C 182	N41°42'28.67851"	W83°31'38.78777"	476.524	MC0736
G 181	N41°31'41.34079"	W83°39'20.18659"	526.495	MC0672
J 317	N41°30'21.40000"	W82°53'22.90000"	468.701	MC0994
K 16	N41°32'43.20290"	W84°08'51.38464"	655.468	MD0054
N 316	N41°33'32.61000"	W83°20'19.34000"	483.695	MC1022
PENINSULA	N41°30'30.72672"	W82°52'13.49658"	472.853	MC1253
R 344	N41°07'38.13509"	W83°14'15.11678"	651.068	MC1637
RIALTO	N41°39'26.53493"	W83°15'50.99085"	455.402	MC1815
S 170	N41°23'12.50864"	W83°45'51.03730"	558.486	MC0532
U 317	N41°31'53.00000"	W82°47'14.40000"	484.908	MC0981
YORSAN	N41°17'33.05735"	W82°54'21.15248"	635.468	AB6124



Woolpert Base Stations:				
Station Name	Latitude	Longitude	Height	PID
			(USFT)	
BARNES	N41°20'30.85093"	W83°58'48.12760"	564.686	MC0622
C 351	N41°23'08.51548"	W83°38'45.62067"	559.050	MC1678
E 182	N41°41'37.56935"	W83°31'36.97676"	478.028	MC0734
HENRY 2	N41°25'21.46804"	W83°52'58.90186"	546.639	MC1753
S24 A	N41°17'44.60710"	W83°01'58.29927"	541.416	DL6925
W 350	N41°00'45.54437"	W83°41'03.08608"	673.761	MC1644
Y 316	N41°31'18.22663"	W83°07'32.35565"	467.431	MC1011
Z 317	N41°32'34.53858"	W82°43'54.65175"	465.281	MC0984



## Section 3: Existing NGS Control Information Sheets

This section contains the published National Geodetic Survey (NGS) Datasheets used or referenced in the final control network for the USGS Lower Maumee 2016 LiDAR Project.

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 12, 2016
DG7166 *****
DG7166 DESIGNATION - 24 1109
DG7166 PID - DG7166
DG7166 STATE/COUNTY- OH/DEFIANCE
DG7166 COUNTRY - US
DG7166 USGS QUAD - DEFIANCE WEST (1977)
DG7166
DG7166 *CURRENT SURVEY CONTROL
DG7166
DG7166* NAD 83(2011) POSITION- 41 16 31.32794(N) 084 24 44.50999(W) ADJUSTED
DG7166* NAD 83(2011) ELLIP HT- 181.003 (meters) (06/27/12) ADJUSTED
DG7166* NAD 83(2011) EPOCH - 2010.00
DG7166* NAVD 88 ORTHO HEIGHT - 215.4 (meters) 707. (feet) GPS OBS
DG7166
DG7166 NAVD 88 orthometric height was determined with geoid model GEOID03
DG7166 GEOID HEIGHT - -34.418 (meters) GEOID03
DG7166 GEOID HEIGHT - -34.438 (meters) GEOID12B
DG7166 NAD 83(2011) X - 467,426.294 (meters) COMP
DG7166 NAD 83(2011) Y - -4,777,797.972 (meters) COMP
DG7166 NAD 83(2011) Z - 4,185,574.470 (meters) COMP
DG7166 LAPLACE CORR - -6.28 (seconds) DEFLEC12B
DG7166
DG7166 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DG7166 Standards:
DG7166 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
DG7166 Horiz Ellip SD_N SD_E SD_h (unitless)
DG7166 -----
DG7166 NETWORK 0.49 0.49 0.24 0.13 0.25 0.16149021
DG7166 -----
DG7166 Click here for local accuracies and other accuracy information.
DG7166
DG7166
DG7166.This is a reference station for the DEFIANCE
DG7166.National Continuously Operating Reference Station (DEFI).
DG7166
DG7166.The horizontal coordinates were established by GPS observations
DG7166.and adjusted by the National Geodetic Survey in June 2012.
DG7166
DG7166.NAD 83(2011) refers to NAD 83 coordinates where the reference
DG7166.frame has been affixed to the stable North American tectonic plate. See
DG7166.NA2011 for more information.
DG7166
DG7166.The horizontal coordinates are valid at the epoch date displayed above
DG7166.which is a decimal equivalence of Year/Month/Day.
DG7166
DG7166.The orthometric height was determined by GPS observations and a
DG7166.high-resolution geoid model.
DG7166

```

DG7166. Significant digits in the geoid height do not necessarily reflect accuracy.  
 DG7166.GEOID12B height accuracy estimate available [here](#).

DG7166

DG7166. The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 DG7166

DG7166. The Laplace correction was computed from DEFLEC12B derived deflections.  
 DG7166

DG7166. The ellipsoidal height was determined by GPS observations

DG7166. and is referenced to NAD 83.

DG7166

DG7166. The following values were computed from the NAD 83(2011) position.

DG7166

	North	East	Units	Scale	Factor	Converg.
DG7166; SPC OH N	- 180,397.274	439,795.952	MT	0.99994569	-1 15	22.8
DG7166; SPC OH N	- 591,853.39	1,442,897.22	sFT	0.99994569	-1 15	22.8
DG7166; UTM 16	- 4,572,555.973	716,725.597	MT	1.00017809	+1 42	27.6

DG7166

	Elev Factor	x	Scale Factor	=	Combined Factor
DG7166! SPC OH N	- 0.99997161	x	0.99994569	=	0.99991730
DG7166! UTM 16	- 0.99997161	x	1.00017809	=	1.00014969

DG7166

PID	Reference Object	Distance	Geod. Az
			ddmmss.s
AJ7186	DEFIANCE CORS ARP	209.389 METERS	33111

DG7166

DG7166

#### SUPERSEDED SURVEY CONTROL

DG7166

DG7166	NAD 83(2007)-	41 16 31.32802(N)	084 24 44.51082(W)	AD(2002.00)	0
DG7166	ELLIP H (02/10/07)	181.016 (m)		GP(2002.00)	
DG7166	NAD 83(1995)-	41 16 31.32804(N)	084 24 44.51083(W)	AD( )	B
DG7166	ELLIP H (09/23/04)	181.017 (m)		GP( )	4 1

DG7166

DG7166. Superseded values are not recommended for survey control.

DG7166

DG7166. NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

DG7166. See file [dsdata.txt](#) to determine how the superseded data were derived.

DG7166

DG7166\_U.S. NATIONAL GRID SPATIAL ADDRESS: 16TGL1672572555(NAD 83)

DG7166

DG7166\_MARKER: I = METAL ROD

DG7166\_SETTING: 50 = ALUMINUM ALLOY ROD W/O SLEEVE (10 FT.+)

DG7166\_STAMPING: 24 1109

DG7166\_MARK LOGO: LOCSUR

DG7166\_PROJECTION: RECESSED 5 CENTIMETERS

DG7166\_MAGNETIC: N = NO MAGNETIC MATERIAL

DG7166\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

DG7166\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

DG7166+SATELLITE: SATELLITE OBSERVATIONS - 2003

DG7166\_ROD/PIPE-DEPTH: 7.0 meters

DG7166

HISTORY	- Date	Condition	Report By
DG7166 HISTORY	- 2003	MONUMENTED	LOCSUR

DG7166



DG7166

## STATION DESCRIPTION

DG7166

DG7166'DESCRIBED BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 2003 (JAS)

DG7166'THE STATION IS LOCATED IN FRONT OF THE OHIO DEPARTMENT OF

DG7166 'TRANSPORTATION DEFIANCE COUNTY GARAGE.

DG7166'

DG7166 'TO REACH FROM THE INTERSECTION OF US ROUTE 24 AND OHIO ROUTE 424 ON

DG7166 'THE WEST SIDE OF DEFIANCE, GO EAST ON OHIO ROUTE 424 FOR 0.3 MILES

DG7166' (0.5 KM). STATION IS LOCATED ON LEFT (NORTH) SIDE OF HIGHWAY IN

DG7166 'FRONT OF ODOT FACILITY.

DG7166'

DG7166' STATION IS 30 FEET NORTH OF CENTERLINE OF OF ROUTE 424 AND 205 FEET

DG7166' EAST OF CENTERLINE OF ACCESS DRIVE TO ODOT FACILITY. STATION IS A

DG7166' 3/4-INCH ALUMINUM ROD DRIVEN TO REFUSAL, ACCESS TO POINT IS THROUGH

DG7166'6 INCH LOGO CAP STAMPED ---24 1109---. THERE IS NO AGENCY LOGO OR

DG7166' IDENTIFIER. NOTE--THIS IS A CORS SITE REFERENCE MARK.

```
*** retrieval complete.
```

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 12, 2016
MC0622 *****
MC0622 DESIGNATION - BARNES
MC0622 PID - MC0622
MC0622 STATE/COUNTY- OH/HENRY
MC0622 COUNTRY - US
MC0622 USGS QUAD - MC CLURE (1971)
MC0622
MC0622 *CURRENT SURVEY CONTROL
MC0622
MC0622* NAD 83(1995) POSITION- 41 20 30.84953(N) 083 58 48.13014(W) ADJUSTED
MC0622* NAVD 88 ORTHO HEIGHT - 207.552 (meters) 680.94 (feet) ADJUSTED
MC0622
MC0622 LAPLACE CORR - -2.70 (seconds) DEFLEC12B
MC0622 GEOID HEIGHT - -35.435 (meters) GEOID12B
MC0622 DYNAMIC HEIGHT - 207.461 (meters) 680.65 (feet) COMP
MC0622 MODELED GRAVITY - 980,177.6 (mgal) NAVD 88
MC0622
MC0622 HORZ ORDER - SECOND
MC0622 VERT ORDER - SECOND CLASS 0
MC0622
MC0622.The horizontal coordinates were established by classical geodetic methods
MC0622.and adjusted by the National Geodetic Survey in April 1998.
MC0622.
MC0622.The orthometric height was determined by differential leveling and
MC0622.adjusted by the NATIONAL GEODETIC SURVEY
MC0622.in June 1991.
MC0622
MC0622.Significant digits in the geoid height do not necessarily reflect accuracy.
MC0622.GEOID12B height accuracy estimate available here.
MC0622
MC0622.Photographs are available for this station.
MC0622
MC0622.The Laplace correction was computed from DEFLEC12B derived deflections.
MC0622
MC0622.The dynamic height is computed by dividing the NAVD 88
MC0622.geopotential number by the normal gravity value computed on the
MC0622.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MC0622.degrees latitude (g = 980.6199 gals.).
MC0622
MC0622.The modeled gravity was interpolated from observed gravity values.
MC0622
MC0622. The following values were computed from the NAD 83(1995) position.
MC0622
MC0622;
MC0622;SPC OH N - 187,080.674 476,134.649 MT 0.99995056 -0 58 20.3
MC0622;SPC OH N - 613,780.51 1,562,118.43 sFT 0.99995056 -0 58 20.3
MC0622;UTM 17 - 4,580,997.896 250,659.462 MT 1.00036519 -1 58 10.1
MC0622;UTM 16 - 4,581,113.561 752,681.697 MT 1.00038584 +1 59 45.2

```





MC0622  
MC0622! - Elev Factor x Scale Factor = Combined Factor  
MC0622!SPC OH N - 0.99997300 x 0.99995056 = 0.99992356  
MC0622!UTM 17 - 0.99997300 x 1.00036519 = 1.00033818  
MC0622!UTM 16 - 0.99997300 x 1.00038584 = 1.00035883  
MC0622  
MC0622 SUPERSEDED SURVEY CONTROL  
MC0622  
MC0622 NAD 83(1994)- 41 20 30.85775(N) 083 58 48.13429(W) AD( ) 2  
MC0622 NAD 83(1986)- 41 20 30.85955(N) 083 58 48.13967(W) AD( ) 2  
MC0622 NAD 27 - 41 20 30.67230(N) 083 58 48.33720(W) AD( ) 2  
MC0622 NGVD 29 (??/??/92) 207.749 (m) 681.59 (f) ADJ UNCH 2 0  
MC0622 NGVD 29 (07/19/86) 207.75 (m) 681.6 (f) LEVELING 3  
MC0622  
MC0622.Superseded values are not recommended for survey control.  
MC0622  
MC0622.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
MC0622.See file dsdata.txt to determine how the superseded data were derived.  
MC0622  
MC0622\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKF5065980997(NAD 83)  
MC0622  
MC0622\_MARKER: DE = TRAVERSE STATION DISK  
MC0622\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
MC0622\_STAMPING: BARNES 1963  
MC0622\_MARK LOGO: CGS  
MC0622\_PROJECTION: PROJECTING 10 CENTIMETERS  
MC0622\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
MC0622+STABILITY: SURFACE MOTION  
MC0622\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC0622+SATELLITE: SATELLITE OBSERVATIONS - May 30, 2014  
MC0622  
MC0622 HISTORY - Date Condition Report By  
MC0622 HISTORY - 1963 MONUMENTED CGS  
MC0622 HISTORY - 1963 GOOD CGS  
MC0622 HISTORY - 1965 GOOD USE  
MC0622 HISTORY - 1980 GOOD LOCENG  
MC0622 HISTORY - 1980 GOOD NGS  
MC0622 HISTORY - 1984 GOOD USPSQD  
MC0622 HISTORY - 20140530 GOOD WOOLPT  
MC0622  
MC0622 STATION DESCRIPTION  
MC0622  
MC0622'DESCRIBED BY COAST AND GEODETIC SURVEY 1963 (JKW)  
MC0622'STATION IS LOCATED ABOUT 3 MILES SOUTHWEST OF MCCLURE AND ABOUT 9  
MC0622'MILES SOUTHEAST OF NAPOLEON IN  
MC0622'THE NORTHWEST CORNER OF AN ALFALFA FIELD. TO REACH THE  
MC0622'STATION FROM THE INTERSECTION OF  
MC0622'U.S. HIGHWAY 6, STATE HIGHWAY 65 AND THE RAILROAD  
MC0622'CROSSING IN MCCLURE, GO SOUTH ON STATE HIGHWAY 65  
MC0622'FOR 2.0 MILES TO A  
MC0622'CROSSROADS, TURN RIGHT AND GO WEST ON A PAVED ROAD FOR 2.0 MILES AND  
MC0622'STATION ON THE LEFT. THE  
MC0622'STATION IS 39.41 FEET NORTHWEST OF TRIANGULATION STATION GRELTON  
MC0622'1943, 62.1 FEET SOUTH OF THE  
MC0622'CENTERLINE OF THE INTERSECTION OF AN EAST-WEST

MC0622'ROAD AND A ROAD LEADING NORTH, 51.4 FEET  
 MC0622'SOUTHEAST OF THE CENTERLINE OF THE  
 MC0622'INTERSECTION OF AN EAST-WEST ROAD AND A ROAD LEADING SOUTH,  
 MC0622'27.1 FEET EAST OF THE  
 MC0622'CENTERLINE OF ROAD LEADING SOUTH, AND 18.8 FEET SOUTH OF THE  
 MC0622'CENTERLINE OF A ROUND  
 MC0622'CONCRETE PIPE CULVERT. THE DISK IS STAMPED BARNES 1963, SET IN TOP  
 MC0622'OF A 10 INCH ROUND  
 MC0622'CONCRETE MONUMENT THAT IS IN THE CENTER OF A CONCRETE PHOTOGRAMMETRIC  
 MC0622'TARGET 8 FEET IN DIAMETER THAT  
 MC0622'PROJECTS 2 INCHES ABOVE THE GROUND.  
 MC0622'

MC0622'ELEVATION OF DISK 681.59 FEET.

MC0622

MC0622 STATION RECOVERY (1963)

MC0622

MC0622'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1963

MC0622'1 MI E FROM GRELTON.

MC0622'TO REACH THE STATION FROM THE POST OFFICE IN GRELTON, GO 1.0 MILE

MC0622'EAST ON SAND RIDGE ROAD. THE MARK IS 62.1 FEET SOUTH OF THE

MC0622'CENTERLINE OF THE INTERSECTION OF AN EAST-WEST ROAD AND A ROAD

MC0622'LEADING NORTH, 51.4 FEET SOUTHEAST OF THE CENTERLINE OF THE

MC0622'INTERSECTION OF AN EAST-WEST ROAD AND A ROAD LEADING SOUTH, 21.7

MC0622'SOUTH OF THE CENTERLINE OF A ROUND CONCRETE PIPE CULVERT. THE

MC0622'DISK IS STAMPED BARNES 1963, SET IN TOP OF A 10 INCH ROUND

MC0622'CONCRETE MONUMENT THAT IS IN THE CENTER OF A CONCRETE

MC0622'PHOTOGRAMMETRIC TARGET 8 FEET IN DIAMETER THAT PROJECTS 2 INCHES

MC0622'ABOVE THE GROUND.

MC0622

MC0622 STATION RECOVERY (1965)

MC0622

MC0622'RECOVERY NOTE BY US ENGINEERS 1965 (GAL)

MC0622'TO REACH STA. FROM JCT. OF HWYS 6 AND 65 AT MCCLURE, TRAVEL S 2 MI.

MC0622'ON HWY 65 TO CO. ROAD M AND W 2 MI. TO TWP. ROAD 6.

MC0622'

MC0622'THE STA. IS LOCATED IN A 2.5 M DIA. CONC. TARGET, 9 M E OF CENTERLINE

MC0622'OF TWP. ROAD 6, 17 M S OF CENTERLINE OF CO. ROAD M, 2.3 M E OF A

MC0622'POWER POLE, AND 3.6 M NE OF A TELEPHONE POLE. THE STA. IS APPROX.

MC0622'1.5 M LOWER THAN THE ROAD.

MC0622'

MC0622'STA. IS MARKED BY A STD. C AND G.S. TRAVERSE MARKER STAMPED

MC0622'BARNES 1963.

MC0622

MC0622 STATION RECOVERY (1980)

MC0622

MC0622'RECOVERY NOTE BY LOCAL ENGINEER (INDIVIDUAL OR FIRM) 1980 (RWW)

MC0622'BARNES-1963 RECOVERED GOOD - CAMARA TARGET AROUND STA.

MC0622'

MC0622'DISTANCE TO GRELTON - 1943 = 37.41 FEET S.E.

MC0622'

MC0622'DISTANCE TO GRELTON NO. 1 1942 = 135.21 FEET EAST.

MC0622'

MC0622'DISTANCE AND DIRECTION FROM NEAREST TOWN--1.0 MI. EAST OF

MC0622'GRELTON, OHIO.

MC0622



MC0622 STATION RECOVERY (1980)  
MC0622  
MC0622'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1980  
MC0622'RECOVERED IN GOOD CONDITION.  
MC0622  
MC0622 STATION RECOVERY (1984)  
MC0622  
MC0622'RECOVERY NOTE BY US POWER SQUADRON 1984  
MC0622'ADD DESC -- CONCRETE CAMERA TARGET IS NOW ALL BROKEN UP.  
MC0622  
MC0622 STATION RECOVERY (2014)  
MC0622  
MC0622'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2014 (DMH)  
MC0622'THE STATION IS 54.2 FT (16.5 M) SOUTH OF THE CENTERLINE OF COUNTY ROAD  
MC0622'M, 27.2 FT (8.3 M) EAST OF THE CENTERLINE OF COUNTY ROAD 6, 7.4 FT  
MC0622'(2.3 M) SOUTHEAST OF A STEEL WITNESS POST AND 4.8 FT (1.5 M) SOUTHEAST  
MC0622'OF A UTILITY POLE.  
  
\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 12, 2016
MC0736 *****
MC0736 DESIGNATION - C 182
MC0736 PID - MC0736
MC0736 STATE/COUNTY- OH/LUCAS
MC0736 COUNTRY - US
MC0736 USGS QUAD - TOLEDO (1980)
MC0736
MC0736 *CURRENT SURVEY CONTROL
MC0736
MC0736* NAD 83(2011) POSITION- 41 42 28.67851(N) 083 31 38.78777(W) ADJUSTED
MC0736* NAD 83(2011) ELLIP HT- 145.245 (meters) (06/27/12) ADJUSTED
MC0736* NAD 83(2011) EPOCH - 2010.00
MC0736* NAVD 88 ORTHO HEIGHT - 180.608 (meters) 592.54 (feet) ADJUSTED
MC0736
MC0736 NAD 83(2011) X - 537,568.517 (meters) COMP
MC0736 NAD 83(2011) Y - -4,738,353.802 (meters) COMP
MC0736 NAD 83(2011) Z - 4,221,540.382 (meters) COMP
MC0736 LAPLACE CORR - -1.20 (seconds) DEFLEC12B
MC0736 GEOID HEIGHT - -35.370 (meters) GEOID12B
MC0736 DYNAMIC HEIGHT - 180.539 (meters) 592.32 (feet) COMP
MC0736 MODELED GRAVITY - 980,237.7 (mgal) NAVD 88
MC0736
MC0736 VERT ORDER - FIRST CLASS I
MC0736
MC0736 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC0736 Standards:
MC0736 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC0736 Horiz Ellip SD_N SD_E SD_h (unitless)
MC0736 -----
MC0736 NETWORK 1.41 3.04 0.62 0.52 1.55 0.20489206
MC0736 -----
MC0736 Click here for local accuracies and other accuracy information.
MC0736
MC0736
MC0736.The horizontal coordinates were established by GPS observations
MC0736.and adjusted by the National Geodetic Survey in June 2012.
MC0736
MC0736.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC0736.frame has been affixed to the stable North American tectonic plate. See
MC0736.NA2011 for more information.
MC0736
MC0736.The horizontal coordinates are valid at the epoch date displayed above
MC0736.which is a decimal equivalence of Year/Month/Day.
MC0736
MC0736.The orthometric height was determined by differential leveling and
MC0736.adjusted by the NATIONAL GEODETIC SURVEY
MC0736.in June 1991.
MC0736

```

MC0736.WARNING-Repeat measurements at this control monument indicate possible MC0736.vertical movement.

MC0736

MC0736.Significant digits in the geoid height do not necessarily reflect accuracy.

MC0736.GEOID12B height accuracy estimate available [here](#).

MC0736

MC0736.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MC0736

MC0736.The Laplace correction was computed from DEFLEC12B derived deflections.

MC0736

MC0736.The ellipsoidal height was determined by GPS observations

MC0736.and is referenced to NAD 83.

MC0736

MC0736.The dynamic height is computed by dividing the NAVD 88

MC0736.geopotential number by the normal gravity value computed on the

MC0736.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MC0736.degrees latitude (g = 980.6199 gals.).

MC0736

MC0736.The modeled gravity was interpolated from observed gravity values.

MC0736

MC0736. The following values were computed from the NAD 83(2011) position.

MC0736

MC0736;		North	East	Units	Scale Factor	Converg.
MC0736;SPC OH N	-	227,188.739	514,489.472	MT	1.00000155	-0 40 29.9
MC0736;SPC OH N	-	745,368.39	1,687,954.21	sFT	1.00000155	-0 40 29.9
MC0736;UTM 17	-	4,620,439.719	289,721.080	MT	1.00014416	-1 40 55.9
MC0736!	-	Elev Factor	x	Scale Factor	=	Combined Factor
MC0736!SPC OH N	-	0.99997722	x	1.00000155	=	0.99997877
MC0736!UTM 17	-	0.99997722	x	1.00014416	=	1.00012138

MC0736

MC0736	PID	Reference Object	Distance	Geod. Az
MC0736				ddmmss.s
MC0736	MC1695 55 P	STICKNEY	395.131 METERS	18304

MC0736

MC0736

#### SUPERSEDED SURVEY CONTROL

MC0736

MC0736	NAD 83(2007)-	41 42 28.67867(N)	083 31 38.78857(W)	AD(2002.00)	0
MC0736	ELLIP H (02/10/07)	145.262 (m)		GP(2002.00)	
MC0736	ELLIP H (10/07/05)	145.281 (m)		GP(	) 4 1
MC0736	NAD 83(1995)-	41 42 28.67846(N)	083 31 38.78790(W)	AD(	) 1
MC0736	ELLIP H (04/01/98)	145.314 (m)		GP(	) 4 1
MC0736	NAD 83(1994)-	41 42 28.67845(N)	083 31 38.78789(W)	AD(	) 1
MC0736	NAD 83(1986)-	41 42 28.69188(N)	083 31 38.80522(W)	AD(	) 1
MC0736	NAVD 88 (09/14/94)	180.61 (m)	592.6 (f)	LEVELING	3
MC0736	NGVD 29 (??/??/92)	180.790 (m)	593.14 (f)	ADJ UNCH	1 1

MC0736

MC0736.Superseded values are not recommended for survey control.

MC0736

MC0736.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC0736.[See file dsdata.txt](#) to determine how the superseded data were derived.

MC0736

MC0736\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKG8972120439(NAD 83)

MC0736

MC0736\_MARKER: DB = BENCH MARK DISK

MC0736\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MC0736\_STAMPING: C 182 1954

MC0736\_MARK LOGO: CGS

MC0736\_MAGNETIC: O = OTHER; SEE DESCRIPTION

MC0736\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MC0736+STABILITY: SURFACE MOTION

MC0736\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC0736+SATELLITE: SATELLITE OBSERVATIONS - July 15, 1993

MC0736

MC0736	HISTORY	- Date	Condition	Report By
MC0736	HISTORY	- 1954	MONUMENTED	CGS
MC0736	HISTORY	- 1968	GOOD	CGS
MC0736	HISTORY	- 1983	GOOD	LOCSUR
MC0736	HISTORY	- 19921204	GOOD	NGS
MC0736	HISTORY	- 19930715	GOOD	NGS

MC0736

#### STATION DESCRIPTION

MC0736

MC0736'DESCRIBED BY COAST AND GEODETIC SURVEY 1968

MC0736'AT TOLEDO.

MC0736'AT TOLEDO, ABOUT 1.45 MILES NORTH ALONG STICKNEY AVENUE FROM  
MC0736'THE INTERSECTION OF MANHATTAN BLVD, 61 1/2 FEET SOUTHEAST OF  
MC0736'THE CENTER OF THE CROSSING OF THE SOUTH TRACK OF THE TOLEDO  
MC0736'TERMINAL RAILROAD, 46 1/2 FEET EAST OF THE CENTER LINE OF  
MC0736'THE AVENUE, 38.9 FEET SOUTH OF THE SOUTH RAIL OF THE SOUTH TRACK,  
MC0736'1 FOOT WEST OF A STEEL LEG FOR A POWER LINE, 1.3 FEET NORTH OF A  
MC0736'METAL WITNESS POST, 1 FOOT ABOVE THE LEVEL OF THE AVENUE AND  
MC0736'SET IN THE TOP OF A CONCRETE POST PROJECTING 3 INCHES ABOVE THE  
MC0736'LEVEL OF THE GROUND.

MC0736

#### STATION RECOVERY (1983)

MC0736

MC0736'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1983

MC0736'RECOVERED IN GOOD CONDITION.

MC0736

#### STATION RECOVERY (1992)

MC0736

MC0736'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1992

MC0736'AT TOLEDO, ABOUT 6 KM (3.70 MI) NORTH OF THE CITY CENTER, 2.0 KM  
MC0736'(1.25 MI) NORTH ALONG STICKNEY AVENUE FROM THE CROSSING OF INTERSTATE  
MC0736'75, 18.7 M (61.4 FT) SOUTHEAST OF THE CENTER OF THE CROSSING OF THE  
MC0736'SOUTH TRACK OF THE TOLEDO TERMINAL RAILROAD, 14.2 M (46.6 FT) EAST OF  
MC0736'THE CENTER LINE OF THE ROAD, 11.8 M (38.7 FT) SOUTH OF THE SOUTH RAIL  
MC0736'OF THE SOUTH TRACK, BETWEEN THE TWO WEST LEGS OF A HIGH VOLTAGE POWER  
MC0736'LINE TOWER, 0.15 M (0.49 FT) WEST OF A FIBERGLASS WITNESS POST, AND  
MC0736'PROJECTING 8 CM.

MC0736

#### STATION RECOVERY (1993)

MC0736

MC0736'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993

MC0736'2.1 KM (1.30 MI) NORTHERLY ALONG STICKNEY AVENUE FROM THE JUNCTION OF  
MC0736'INTERSTATE HIGHWAY 75 IN TOLEDO, 14.3 M (46.9 FT) EAST OF THE  
MC0736'CENTERLINE OF THE AVENUE, 11.7 M (38.4 FT) SOUTH OF THE NEAR RAIL OF



MC0736'THE CONRAIL RAILROAD, 2.2 M (7.2 FT) SOUTH OF THE NORTHWEST LEG OF  
MC0736'HIGH LINE TOWER NUMBER 86, 2.2 M (7.2 FT) NORTH OF THE SOUTHWEST LEG  
MC0736'OF THE TOWER, 0.3 M (1.0 FT) BELOW THE LEVEL OF THE AVENUE, 0.2 M  
MC0736'(0.7 FT) WEST OF A WITNESS POST, AND THE MONUMENT PROJECTS 0.1 M (0.3  
MC0736'FT) ABOVE THE GROUND SURFACE.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 12, 2016
MC1678 *****
MC1678 FBN - This is a Federal Base Network Control Station.
MC1678 DESIGNATION - C 351
MC1678 PID - MC1678
MC1678 STATE/COUNTY- OH/WOOD
MC1678 COUNTRY - US
MC1678 USGS QUAD - BOWLING GREEN NORTH (1994)
MC1678
MC1678 *CURRENT SURVEY CONTROL
MC1678
MC1678* NAD 83(2011) POSITION- 41 23 08.51548(N) 083 38 45.62067(W) ADJUSTED
MC1678* NAD 83(2011) ELLIP HT- 170.403 (meters) (06/27/12) ADJUSTED
MC1678* NAD 83(2011) EPOCH - 2010.00
MC1678* NAVD 88 ORTHO HEIGHT - 205.739 (meters) 675.00 (feet) ADJUSTED
MC1678
MC1678 NAD 83(2011) X - 530,391.420 (meters) COMP
MC1678 NAD 83(2011) Y - -4,763,068.230 (meters) COMP
MC1678 NAD 83(2011) Z - 4,194,768.853 (meters) COMP
MC1678 LAPLACE CORR - 0.77 (seconds) DEFLEC12B
MC1678 GEOID HEIGHT - -35.340 (meters) GEOID12B
MC1678 DYNAMIC HEIGHT - 205.654 (meters) 674.72 (feet) COMP
MC1678 MODELED GRAVITY - 980,205.7 (mgal) NAVD 88
MC1678
MC1678 VERT ORDER - FIRST CLASS II
MC1678
MC1678 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC1678 Standards:
MC1678 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC1678 Horiz Ellip SD_N SD_E SD_h (unitless)
MC1678 -----
MC1678 NETWORK 0.51 1.29 0.23 0.18 0.66 0.02499553
MC1678 -----
MC1678 Click here for local accuracies and other accuracy information.
MC1678
MC1678
MC1678.The horizontal coordinates were established by GPS observations
MC1678.and adjusted by the National Geodetic Survey in June 2012.
MC1678
MC1678.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC1678.frame has been affixed to the stable North American tectonic plate. See
MC1678.NA2011 for more information.
MC1678
MC1678.The horizontal coordinates are valid at the epoch date displayed above
MC1678.which is a decimal equivalence of Year/Month/Day.
MC1678
MC1678.The orthometric height was determined by differential leveling and
MC1678.adjusted by the NATIONAL GEODETIC SURVEY
MC1678.in January 1994.

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MC1678  
 MC1678.Significant digits in the geoid height do not necessarily reflect accuracy.  
 MC1678.GEOID12B height accuracy estimate available here.  
 MC1678  
 MC1678.Photographs are available for this station.  
 MC1678  
 MC1678.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 MC1678  
 MC1678.The Laplace correction was computed from DEFLEC12B derived deflections.  
 MC1678  
 MC1678.The ellipsoidal height was determined by GPS observations  
 MC1678.and is referenced to NAD 83.  
 MC1678  
 MC1678.The dynamic height is computed by dividing the NAVD 88  
 MC1678.geopotential number by the normal gravity value computed on the  
 MC1678.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 MC1678.degrees latitude (g = 980.6199 gals.).  
 MC1678  
 MC1678.The modeled gravity was interpolated from observed gravity values.  
 MC1678  
 MC1678. The following values were computed from the NAD 83(2011) position.  
 MC1678  

MC1678;		North	East	Units	Scale	Factor	Converg.
MC1678;SPC OH N	-	191,523.188	504,151.973	MT	0.99995451	-0 45 10.3	
MC1678;SPC OH N	-	628,355.66	1,654,038.60	sFT	0.99995451	-0 45 10.3	
MC1678;UTM 17	-	4,584,953.439	278,759.120	MT	1.00020242	-1 45 00.2	

 MC1678  

MC1678!	-	Elev Factor	x	Scale Factor	=	Combined Factor
MC1678!SPC OH N	-	0.99997327	x	0.99995451	=	0.99992778
MC1678!UTM 17	-	0.99997327	x	1.00020242	=	1.00017569

 MC1678  

SUPERSEDED SURVEY CONTROL

 MC1678  

MC1678	NAD 83(2007)-	41 23 08.51561(N)	083 38 45.62149(W)	AD(2002.00)	0
MC1678	ELLIP H (02/10/07)	170.416 (m)		GP(2002.00)	
MC1678	ELLIP H (09/23/04)	170.404 (m)		GP(	) 4 1
MC1678	NAD 83(1995)-	41 23 08.51593(N)	083 38 45.62110(W)	AD(	) B
MC1678	ELLIP H (08/20/96)	170.451 (m)		GP(	) 4 2
MC1678	NAVD 88 (08/20/96)	205.74 (m)	675.0	(f) LEVELING	3

 MC1678  
 MC1678.Superseded values are not recommended for survey control.  
 MC1678  
 MC1678.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 MC1678.See file dsdata.txt to determine how the superseded data were derived.  
 MC1678  
 MC1678\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKF7875984953(NAD 83)  
 MC1678  
 MC1678\_MARKER: F = FLANGE-ENCASED ROD  
 MC1678\_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
 MC1678\_STAMPING: C 351 1993  
 MC1678\_MARK LOGO: NGS  
 MC1678\_PROJECTION: FLUSH  
 MC1678\_MAGNETIC: N = NO MAGNETIC MATERIAL  
 MC1678\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 MC1678\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC1678+SATELLITE: SATELLITE OBSERVATIONS - April 01, 2010

MC1678\_ROD/PIPE-DEPTH: 2.4 meters

MC1678\_SLEEVE-DEPTH : 2.0 meters

MC1678

MC1678	HISTORY	- Date	Condition	Report By
MC1678	HISTORY	- 1993	MONUMENTED	NGS
MC1678	HISTORY	- 19941206	GOOD	OHDT
MC1678	HISTORY	- 20030710	GOOD	NGS
MC1678	HISTORY	- 20100401	GOOD	OHDT

MC1678

MC1678

#### STATION DESCRIPTION

MC1678

MC1678'DESCRIBED BY NATIONAL GEODETIC SURVEY 1993

MC1678'IN BOWLING GREEN, AT 317 EAST POE ROAD, 34.4 M (112.9 FT) EAST OF THE  
MC1678'SOUTHEAST CORNER OF THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 2  
MC1678'BUILDING AT 317 EAST POE ROAD, 15.2 M (49.9 FT) NORTH OF THE CENTER  
MC1678'OF THE ROAD, 8.3 M (27.2 FT) EAST OF THE EXTENDED CENTER OF NORTH  
MC1678'ENTERPRISE STREET, 8.0 M (26.2 FT) NORTH-NORTHWEST OF A FIRE HYDRANT,  
MC1678'4.2 M (13.8 FT) SOUTH OF THE SOUTH EDGE OF A PARKING LOT, AND 0.1 M  
MC1678'(0.3 FT) BELOW THE LEVEL OF THE ROAD. NOTE--ACCESS TO THE DATUM  
MC1678'POINT IS THROUGH A 5-INCH LOGO CAP. THE ROD IS SET IN CONCRETE  
MC1678'POURED INTO A HOLE DRILLED INTO ROCK. THE ROD WAS DRIVEN TO REFUSAL  
MC1678'AND ANCHORED. THE SLEEVE SETS ON TOP OF THE CONCRETE.

MC1678

MC1678

#### STATION RECOVERY (1994)

MC1678

MC1678'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 1994 (MDB)

MC1678'IN BOWLING GREEN, AT 317 EAST POE ROAD, 34.4 M (112.9 FT) EAST OF THE  
MC1678'SOUTHEAST CORNER OF THE OHIO DEPARTMENT OF TRANSPORTATION DISTRICT 2  
MC1678'BUILDING, 15.2 M (49.9 FT) NORTH OF THE CENTER OF THE ROAD, 8.3 M  
MC1678'(27.2 FT) EAST OF THE EXTENDED CENTER OF NORTH ENTERPRISE STREET, 8.0  
MC1678'M (26.2 FT) NORTH-NORTHWEST OF A FIRE HYDRANT, 4.2 M (13.8 FT) SOUTH  
MC1678'OF THE SOUTH EDGE OF A PARKING LOT, AND 0.1 M (0.3 FT) BELOW THE LEVEL  
MC1678'OF THE ROAD. NOTE--ACCESS TO THE DATUM POINT IS THROUGH A 5-INCH LOGO  
MC1678'CAP. THE ROD IS SET IN CONCRETE. THE ROD IS FLUSH WITH GROUND LEVEL.  
MC1678'OWNERSHIP--STATE OF OHIO, DEPARTMENT OF TRANSPORTATION, DISTRICT 2  
MC1678'DEPUTY DIRECTOR, 317 EAST POE ROAD, BOWLING GREEN, OHIO 43402. MARK  
MC1678'IS ACCESSIBLE AT ALL TIMES.

MC1678

MC1678

#### STATION RECOVERY (2003)

MC1678

MC1678'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2003 (JMW)

MC1678'RECOVERED AS DESCRIBED IN THE 1994 RECOVERY DESCRIPTION. NEW TO REACH  
MC1678'FOLLOWS.

MC1678'

MC1678'TO REACH THE STATION FROM THE JUNCTION OF STATE HIGHWAYS 64 AND 105  
MC1678'WITH INTERSTATE HIGHWAY 75 AT EXIT 181, 1 MILE EAST OF BOWLING GREEN,  
MC1678'GO EAST ON HIGHWAY 105 FOR 0.2 MILE TO THE JUNCTION OF NORTH  
MC1678'DUNBRIDGE ROAD ON THE LEFT AT A TRAFFIC LIGHT. TURN LEFT AND GO  
MC1678'NORTH ON NORTH DUNBRIDGE ROAD FOR 0.8 MILE TO THE JUNCTION OF EAST POE  
MC1678'ROAD. TURN LEFT AND GO WEST ON EAST POE ROAD FOR 1.9 MILES TO THE  
MC1678'PARKING LOT FOR ODOT DISTRICT 2 OFFICE AND THE STATION ON RIGHT.

MC1678

MC1678

#### STATION RECOVERY (2010)

MC1678



MC1678'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2010 (DJB)  
MC1678'FOUND AS DESCRIBED

\*\*\* retrieval complete.  
Elapsed Time = 00:00:03

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 12, 2016
MC0734 *****
MC0734 DESIGNATION - E 182
MC0734 PID - MC0734
MC0734 STATE/COUNTY- OH/LUCAS
MC0734 COUNTRY - US
MC0734 USGS QUAD - TOLEDO (1980)
MC0734
MC0734 *CURRENT SURVEY CONTROL
MC0734
MC0734* NAD 83(2011) POSITION- 41 41 37.56935(N) 083 31 36.97676(W) ADJUSTED
MC0734* NAD 83(2011) ELLIP HT- 145.716 (meters) (06/27/12) ADJUSTED
MC0734* NAD 83(2011) EPOCH - 2010.00
MC0734* NAVD 88 ORTHO HEIGHT - 181.073 (meters) 594.07 (feet) ADJUSTED
MC0734
MC0734 NAD 83(2011) X - 537,728.419 (meters) COMP
MC0734 NAD 83(2011) Y - -4,739,391.737 (meters) COMP
MC0734 NAD 83(2011) Z - 4,220,363.367 (meters) COMP
MC0734 LAPLACE CORR - -1.27 (seconds) DEFLEC12B
MC0734 GEOID HEIGHT - -35.370 (meters) GEOID12B
MC0734 DYNAMIC HEIGHT - 181.003 (meters) 593.84 (feet) COMP
MC0734 MODELED GRAVITY - 980,236.3 (mgal) NAVD 88
MC0734
MC0734 VERT ORDER - FIRST CLASS I
MC0734
MC0734 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC0734 Standards:
MC0734 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC0734 Horiz Ellip SD_N SD_E SD_h (unitless)
MC0734 -----
MC0734 NETWORK 0.79 1.61 0.36 0.27 0.82 0.10103996
MC0734 -----
MC0734 Click here for local accuracies and other accuracy information.
MC0734
MC0734
MC0734.The horizontal coordinates were established by GPS observations
MC0734.and adjusted by the National Geodetic Survey in June 2012.
MC0734
MC0734.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC0734.frame has been affixed to the stable North American tectonic plate. See
MC0734.NA2011 for more information.
MC0734
MC0734.The horizontal coordinates are valid at the epoch date displayed above
MC0734.which is a decimal equivalence of Year/Month/Day.
MC0734
MC0734.The orthometric height was determined by differential leveling and
MC0734.adjusted by the NATIONAL GEODETIC SURVEY
MC0734.in June 1991.
MC0734

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MC0734.Significant digits in the geoid height do not necessarily reflect accuracy.  
MC0734.GEOID12B height accuracy estimate available here.

MC0734

MC0734.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
MC0734

MC0734.The Laplace correction was computed from DEFLEC12B derived deflections.  
MC0734

MC0734.The ellipsoidal height was determined by GPS observations

MC0734.and is referenced to NAD 83.

MC0734

MC0734.The dynamic height is computed by dividing the NAVD 88

MC0734.geopotential number by the normal gravity value computed on the

MC0734.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MC0734.degrees latitude (g = 980.6199 gals.).

MC0734

MC0734.The modeled gravity was interpolated from observed gravity values.

MC0734

MC0734. The following values were computed from the NAD 83(2011) position.

MC0734

MC0734;		North	East	Units	Scale	Factor	Converg.
MC0734;SPC OH N	-	225,611.532	514,512.772	MT	0.99999880	-0 40	28.7
MC0734;SPC OH N	-	740,193.83	1,688,030.65	sFT	0.99999880	-0 40	28.7
MC0734;UTM 17	-	4,618,862.118	289,716.657	MT	1.00014418	-1 40	53.1
MC0734!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC0734!SPC OH N	-	0.99997715	x	0.99999880	=	0.99997595	
MC0734!UTM 17	-	0.99997715	x	1.00014418	=	1.00012132	

MC0734

MC0734 SUPERSEDED SURVEY CONTROL

MC0734

MC0734	NAD 83(2007)-	41 41 37.56951(N)	083 31 36.97755(W)	AD(2002.00)	0
MC0734	ELLIP H (02/10/07)	145.733 (m)		GP(2002.00)	
MC0734	ELLIP H (10/07/05)	145.753 (m)		GP( )	4 1
MC0734	NAD 83(1995)-	41 41 37.56925(N)	083 31 36.97695(W)	AD( )	1
MC0734	ELLIP H (04/01/98)	145.787 (m)		GP( )	4 1
MC0734	NAD 83(1994)-	41 41 37.56924(N)	083 31 36.97694(W)	AD( )	1
MC0734	NAD 83(1986)-	41 41 37.58272(N)	083 31 36.99425(W)	AD( )	1
MC0734	NAVD 88 (09/14/94)	181.07 (m)	594.1 (f)	LEVELING	3
MC0734	NGVD 29 (??/??/92)	181.257 (m)	594.67 (f)	ADJ UNCH	1 1

MC0734

MC0734.Superseded values are not recommended for survey control.

MC0734

MC0734.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC0734.See file dsdata.txt to determine how the superseded data were derived.

MC0734

MC0734\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKG8971618862(NAD 83)

MC0734

MC0734\_MARKER: DB = BENCH MARK DISK

MC0734\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MC0734\_STAMPING: E 182 1954

MC0734\_MARK LOGO: CGS

MC0734\_MAGNETIC: O = OTHER; SEE DESCRIPTION

MC0734\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MC0734+STABILITY: SURFACE MOTION

MC0734\_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR

MC0734+SATELLITE: SATELLITE OBSERVATIONS - May 01, 2001

MC0734

MC0734	HISTORY	- Date	Condition	Report By
MC0734	HISTORY	- 1954	MONUMENTED	CGS
MC0734	HISTORY	- 1968	GOOD	CGS
MC0734	HISTORY	- 1983	MARK NOT FOUND	LOCSUR
MC0734	HISTORY	- 19921204	GOOD	PLSO
MC0734	HISTORY	- 19930715	GOOD	NGS
MC0734	HISTORY	- 19930924	GOOD	GEOMET
MC0734	HISTORY	- 20010501	GOOD	JCLS

MC0734

MC0734 STATION DESCRIPTION

MC0734

MC0734'DESCRIBED BY COAST AND GEODETIC SURVEY 1968

MC0734'AT TOLEDO.

MC0734'AT TOLEDO, ABOUT 0.5 MILE NORTH ALONG STICKNEY AVENUE FROM THE  
MC0734'INTERSECTION OF MANHATTAN BLVD, ABOUT 80 YARDS NORTH OF THE  
MC0734'JUNCTION OF ELBON STREET, NEAR THE CROSSING OF A DOUBLE RAILROAD  
MC0734'TRACK, 47.9 FEET NORTH OF THE NORTH RAIL OF THE NORTH TRACK,  
MC0734'20.7 FEET EAST OF THE EAST CURB OF THE AVENUE, 24.8 FEET NORTH  
MC0734'OF THE SOUTHWEST CORNER OF THE CHAIN LINK FENCE AROUND THE  
MC0734'KAISER JEEP CORP. PLANT, 20.4 FEET NORTHEAST OF THE CENTER OF  
MC0734'A ROUND MANHOLE COVER MARKED WATER, 1.2 FEET NORTH OF A METAL  
MC0734'WITNESS POST, 1 FOOT BELOW THE LEVEL OF THE AVENUE AND SET IN  
MC0734'THE TOP OF A CONCRETE POST PROJECTING 3 INCHES ABOVE THE LEVEL  
MC0734'OF THE GROUND.

MC0734

MC0734 STATION RECOVERY (1983)

MC0734

MC0734'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1983

MC0734'MARK NOT FOUND.

MC0734

MC0734 STATION RECOVERY (1992)

MC0734

MC0734'RECOVERY NOTE BY LAND SURV OF OH 1992

MC0734'THE STATION IS LOCATED IN TOLEDO, ABOUT 4 KM (2.50 MI) NORTH OF THE  
MC0734'CITY CENTER, 0.4 KM (0.25 MI) NORTH ALONG STICKNEY AVENUE FROM THE  
MC0734'JUNCTION OF INTERSTATE 75, JUST NORTHEAST OF A RAILROAD CROSSING, AND  
MC0734'NEAR THE SOUTHWEST CORNER OF A JEEP FACTORY. IT IS 18.9 M  
MC0734'(62.0 FT) NORTH OF THE NORTH RAIL, 6.3 M (20.7 FT) EAST OF THE EAST  
MC0734'CURB, 7.6 M (24.9 FT) NORTH OF THE SOUTHWEST CORNER OF THE CHAIN LINK  
MC0734'FENCE AROUND THE FACTORY, 6.28 M (20.60 FT) NORTHEAST OF A MANHOLE  
MC0734'COVER MARKED--WATER--, 5.39 M (17.68 FT) SOUTHEAST OF ANOTHER MANHOLE,  
MC0734'0.4 M (1.3 FT) WEST OF THE CHAIN LINK FENCE AND A FIBERGLASS WITNESS  
MC0734'POST, 0.3 M (1.0 FT) BELOW THE STREET LEVEL, AND SET IN A ROUND  
MC0734'CONCRETE MONUMENT PROJECTING 0.1 M (0.3 FT) .

MC0734

MC0734 STATION RECOVERY (1993)

MC0734

MC0734'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993

MC0734'0.5 KM (0.30 MI) NORTHERLY ALONG STICKNEY AVENUE FROM THE JUNCTION OF  
MC0734'INTERSTATE HIGHWAY 75 IN TOLEDO, 115.9 M (380.2 FT) NORTH OF THE  
MC0734'CENTER OF ELBON STREET, 18.7 M (61.4 FT) NORTH OF THE NEAR RAIL OF  
MC0734'THE CONRAIL RAILROAD, 12.1 M (39.7 FT) EAST OF THE CENTERLINE OF THE  
MC0734'AVENUE, 7.0 M (23.0 FT) NORTH OF THE SOUTHWEST CORNER OF A FENCE, 0.4



MC0734'M (1.3 FT) WEST OF A FENCE, 0.3 M (1.0 FT) BELOW THE LEVEL OF THE  
MC0734'AVENUE, 0.2 M (0.7 FT) WEST OF A WITNESS POST, AND THE MONUMENT IS  
MC0734'FLUSH WITH THE GROUND SURFACE.

MC0734

MC0734 STATION RECOVERY (1993)

MC0734

MC0734'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1993

MC0734'RECOVERED IN GOOD CONDITION.

MC0734

MC0734 STATION RECOVERY (2001)

MC0734

MC0734'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2001 (CLG)

MC0734'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 12, 2016
MC0672 *****
MC0672 DESIGNATION - G 181
MC0672 PID - MC0672
MC0672 STATE/COUNTY- OH/WOOD
MC0672 COUNTRY - US
MC0672 USGS QUAD - MAUMEE (1994)
MC0672
MC0672 *CURRENT SURVEY CONTROL
MC0672
MC0672* NAD 83(1995) POSITION- 41 31 41.34079(N) 083 39 20.18659(W) ADJUSTED
MC0672* NAD 83(1995) ELLIP HT- 160.476 (meters) (04/01/98) ADJUSTED
MC0672* NAVD 88 ORTHO HEIGHT - 195.710 (meters) 642.09 (feet) ADJUSTED
MC0672
MC0672 NAD 83(1995) X - 528,434.893 (meters) COMP
MC0672 NAD 83(1995) Y - -4,752,739.098 (meters) COMP
MC0672 NAD 83(1995) Z - 4,206,619.732 (meters) COMP
MC0672 LAPLACE CORR - -0.03 (seconds) DEFLEC12B
MC0672 GEOID HEIGHT - -35.310 (meters) GEOID12B
MC0672 DYNAMIC HEIGHT - 195.632 (meters) 641.84 (feet) COMP
MC0672 MODELED GRAVITY - 980,221.5 (mgal) NAVD 88
MC0672
MC0672 HORZ ORDER - THIRD
MC0672 VERT ORDER - FIRST CLASS I
MC0672 ELLP ORDER - FOURTH CLASS I
MC0672
MC0672.The horizontal coordinates were established by GPS observations
MC0672.and adjusted by the National Geodetic Survey in April 1998.
MC0672
MC0672.The orthometric height was determined by differential leveling and
MC0672.adjusted by the NATIONAL GEODETIC SURVEY
MC0672.in January 1994.
MC0672
MC0672.Significant digits in the geoid height do not necessarily reflect accuracy.
MC0672.GEOID12B height accuracy estimate available here.
MC0672
MC0672.Photographs are available for this station.
MC0672
MC0672.The X, Y, and Z were computed from the position and the ellipsoidal ht.
MC0672
MC0672.The Laplace correction was computed from DEFLEC12B derived deflections.
MC0672
MC0672.The ellipsoidal height was determined by GPS observations
MC0672.and is referenced to NAD 83.
MC0672
MC0672.The dynamic height is computed by dividing the NAVD 88
MC0672.geopotential number by the normal gravity value computed on the
MC0672.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MC0672.degrees latitude (g = 980.6199 gals.).

```



MC0672

MC0672.The modeled gravity was interpolated from observed gravity values.

MC0672

MC0672. The following values were computed from the NAD 83(1995) position.

MC0672

MC0672;		North	East	Units	Scale	Factor	Converg.
MC0672;SPC OH N	-	207,352.854	503,558.588	MT	0.99997138	-0 45 33.0	
MC0672;SPC OH N	-	680,290.16	1,652,091.80	sFT	0.99997138	-0 45 33.0	
MC0672;UTM 17	-	4,600,794.862	278,441.924	MT	1.00020413	-1 45 40.9	
MC0672!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC0672!SPC OH N	-	0.99997483	x	0.99997138	=	0.99994621	
MC0672!UTM 17	-	0.99997483	x	1.00020413	=	1.00017895	

MC0672

MC0672 SUPERSEDED SURVEY CONTROL

MC0672

MC0672	NAD 83(1994)-	41 31 41.34073(N)	083 39 20.18652(W)	AD(	) 3
MC0672	NAD 83(1986)-	41 31 41.34329(N)	083 39 20.20201(W)	AD(	) 3
MC0672	NAD 27	- 41 31 41.17431(N)	083 39 20.44061(W)	AD(	) 3
MC0672	NAVD 88 (06/15/91)	195.711 (m)	642.10 (f)	SUPERSEDED	1 1
MC0672	NGVD 29 (??/??/92)	195.906 (m)	642.73 (f)	ADJ UNCH	1 1
MC0672	NGVD 29 (02/23/89)	196. (m)	RAPSU86 model used	GPS OBS	

MC0672

MC0672.Superseded values are not recommended for survey control.

MC0672

MC0672.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC0672.See file dsdata.txt to determine how the superseded data were derived.

MC0672

MC0672\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKG7844100794(NAD 83)

MC0672

MC0672\_MARKER: DB = BENCH MARK DISK

MC0672\_SETTING: 32 = SET IN A RETAINING WALL OR CONCRETE LEDGE

MC0672\_SP\_SET: HEADWALL

MC0672\_STAMPING: G 181 1954

MC0672\_MARK LOGO: CGS

MC0672\_MAGNETIC: N = NO MAGNETIC MATERIAL

MC0672\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

MC0672+STABILITY: SURFACE MOTION

MC0672\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC0672+SATELLITE: SATELLITE OBSERVATIONS - July 15, 1993

MC0672

MC0672	HISTORY	-	Date	Condition	Report By
MC0672	HISTORY	-	1954	MONUMENTED	CGS
MC0672	HISTORY	-	1968	GOOD	CGS
MC0672	HISTORY	-	1983	GOOD	LOCSUR
MC0672	HISTORY	-	1986	GOOD	NGS
MC0672	HISTORY	-	1987	GOOD	USPSQD
MC0672	HISTORY	-	19930715	GOOD	NGS

MC0672

MC0672 STATION DESCRIPTION

MC0672

MC0672'DESCRIBED BY COAST AND GEODETIC SURVEY 1968

MC0672'2.6 MI SW FROM PERRYSBURG.

MC0672'ABOUT 2.6 MILES SOUTHWEST ALONG THE BALTIMORE AND OHIO RAILROAD

MC0672'FROM THE STATION AT PERRYSBURG, NEAR MILEPOLE 190-13, 139 FEET

MC0672'SOUTH OF THE CENTER OF THE CROSSING OF FORT MEIGS ROAD, SET ON  
MC0672'THE TOP OF THE SOUTHEAST CORNER OF A 10-FOOT CONCRETE BOX CULVERT  
MC0672'UNDER THE TRACK, 41.3 FEET SOUTHEAST OF THE SOUTHEAST RAIL, 28  
MC0672'FEET WEST OF THE CENTER LINE OF THE ROAD AND 2 1/2 FEET BELOW  
MC0672'THE LEVEL OF THE TRACK.

MC0672

MC0672 STATION RECOVERY (1983)

MC0672

MC0672'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1983

MC0672'RECOVERED IN GOOD CONDITION.

MC0672

MC0672 STATION RECOVERY (1986)

MC0672

MC0672'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1986

MC0672'THE STATION IS LOCATED ABOUT 10 MILES NORTH OF BOWLING GREEN, 4 MILES

MC0672'NORTHEAST OF WATERVILLE AND 2.5 MILES SOUTHWEST OF PERRYBURG IN THE

MC0672'SOUTHEAST CORNER OF A 3 METER BOX CULVERT WHICH RUNS UNDER THE

MC0672'RAILROAD TRACKS. OWNERSHIP OHIO DEPARTMENT OF HIGHWAYS.

MC0672'TO REACH FROM THE JUNCTION OF INTERSTATE HIGHWAY 475, US HIGHWAY 23

MC0672'AND STATE HIGHWAY 25 ABOUT 2 MILES SOUTH OF PERRYSBURG. GO SOUTH ON

MC0672'STATE HIGHWAY 25 FOR 0.7 MILE TO A ROAD RIGHT. TURN RIGHT, WEST,

MC0672'ON ROACHTON ROAD AND GO FOR 0.9 MILE TO FORT MEIGS ROAD ON THE RIGHT.

MC0672'TURN RIGHT, NORTH, GO FOR 0.4 MILE TO THE STATION ON THE LEFT NEAR

MC0672'RAILROAD CROSSING.

MC0672'THE STATION IS STANDARD CGS BENCHMARK DISK STAMPED --G 181 1954--

MC0672'SET IN THE TOP OF A CONCRETE BOX CULVERT. IT IS 42.4 METERS SOUTH-

MC0672'SOUTHEAST OF THE CENTER OF THE INTERSECTION OF FORT MEIGS ROAD AND

MC0672'THE RAILROAD, 12.5 METERS SOUTHEAST OF THE SOUTHEAST RAIL AND

MC0672'8.5 METERS WEST OF THE CENTER LINE OF FORT MEIGS ROAD.

MC0672'DESCRIBED BY B.L. LAMBERT TYPED BY JAMES MALONEY 9/09/87.

MC0672

MC0672 STATION RECOVERY (1987)

MC0672

MC0672'RECOVERY NOTE BY US POWER SQUADRON 1987 (MS)

MC0672'RECOVERED IN GOOD CONDITION.

MC0672

MC0672 STATION RECOVERY (1993)

MC0672

MC0672'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993

MC0672'3.9 KM (2.40 MI) SOUTHWESTERLY ALONG THE CHESSIE SYSTEM RAILROAD FROM

MC0672'THE JUNCTION OF U.S. HIGHWAY 20 (LOUISIANA AVENUE) IN PERRYSBURG, IN

MC0672'TOP OF AND 0.3 M (1.0 FT) WEST OF THE EAST END OF THE SOUTH CONCRETE

MC0672'HEADWALL OF A BOX CULVERT UNDER THE RAILROAD, 12.4 M (40.7 FT)

MC0672'SOUTHEAST OF THE NEAR RAIL, 8.7 M (28.5 FT) WEST OF THE CENTER OF

MC0672'FORT MEIGS ROAD, AND 0.9 M (3.0 FT) BELOW THE LEVEL OF THE TRACK.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.8

1 National Geodetic Survey, Retrieval Date = MAY 13, 2016

MC1753 \*\*\*\*\*

MC1753 DESIGNATION - HENRY 2

MC1753 PID - MC1753

MC1753 STATE/COUNTY- OH/LUCAS

MC1753 COUNTRY - US

MC1753 USGS QUAD - COLTON (1977)

MC1753

MC1753 \*CURRENT SURVEY CONTROL

MC1753

MC1753\* NAD 83(2011) POSITION- 41 25 21.46804(N) 083 52 58.90186(W) ADJUSTED

MC1753\* NAD 83(2011) ELLIP HT- 166.590 (meters) (06/27/12) ADJUSTED

MC1753\* NAD 83(2011) EPOCH - 2010.00

MC1753\* NAVD 88 ORTHO HEIGHT - 202.0 (meters) 663. (feet) GPS OBS

MC1753

MC1753 NAVD 88 orthometric height was determined with geoid model GEOID93

MC1753 GEOID HEIGHT - -35.400 (meters) GEOID93

MC1753 GEOID HEIGHT - -35.430 (meters) GEOID12B

MC1753 NAD 83(2011) X - 510,393.590 (meters) COMP

MC1753 NAD 83(2011) Y - -4,762,521.440 (meters) COMP

MC1753 NAD 83(2011) Z - 4,197,842.909 (meters) COMP

MC1753 LAPLACE CORR - -0.61 (seconds) DEFLEC12B

MC1753

MC1753 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

MC1753 Standards:

MC1753 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

MC1753 Horiz Ellip SD\_N SD\_E SD\_h (unitless)

MC1753 -----

MC1753 NETWORK 1.24 2.49 0.58 0.40 1.27 0.06767258

MC1753 -----

MC1753 Click here for local accuracies and other accuracy information.

MC1753

MC1753

MC1753.The horizontal coordinates were established by GPS observations

MC1753.and adjusted by the National Geodetic Survey in June 2012.

MC1753

MC1753.NAD 83(2011) refers to NAD 83 coordinates where the reference

MC1753.frame has been affixed to the stable North American tectonic plate. See

MC1753.NA2011 for more information.

MC1753

MC1753.The horizontal coordinates are valid at the epoch date displayed above

MC1753.which is a decimal equivalence of Year/Month/Day.

MC1753

MC1753.The orthometric height was determined by GPS observations and a

MC1753.high-resolution geoid model.

MC1753

MC1753.Significant digits in the geoid height do not necessarily reflect accuracy.

MC1753.GEOID12B height accuracy estimate available here.

MC1753

MC1753.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
MC1753  
MC1753.The Laplace correction was computed from DEFLEC12B derived deflections.  
MC1753  
MC1753.The ellipsoidal height was determined by GPS observations  
MC1753.and is referenced to NAD 83.  
MC1753  
MC1753. The following values were computed from the NAD 83(2011) position.  
MC1753  
MC1753;  

	North	East	Units	Scale	Factor	Converg.
MC1753;SPC OH N	- 195,911.564	484,394.769	MT	0.99995829	-0 54 30.9	
MC1753;SPC OH N	- 642,753.19	1,589,218.50	sFT	0.99995829	-0 54 30.9	
MC1753;UTM 17	- 4,589,686.852	259,075.456	MT	1.00031439	-1 54 30.1	

MC1753  
MC1753!  

-	Elev Factor	x	Scale Factor	=	Combined Factor
MC1753!SPC OH N	- 0.99997387	x	0.99995829	=	0.99993216
MC1753!UTM 17	- 0.99997387	x	1.00031439	=	1.00028825

MC1753  
MC1753:  

	Primary Azimuth Mark	Grid Az
MC1753:SPC OH N	- KROHN	182 31 20.4
MC1753:UTM 17	- KROHN	183 31 19.6

MC1753  
MC1753  

PID	Reference Object	Distance	Geod. Az
			dddmss.s
MC1764	KROHN	APPROX. 0.6 KM	1813649.5

MC1753  
MC1753  

SUPERSEDED SURVEY CONTROL

MC1753  
MC1753  

MC1753	NAD 83(2007)-	41 25 21.46819(N)	083 52 58.90268(W)	AD(2002.00)	0
MC1753	ELLIP H (02/10/07)	166.606 (m)		GP(2002.00)	
MC1753	ELLIP H (10/07/05)	166.630 (m)		GP(	) 4 1
MC1753	NAD 83(1995)-	41 25 21.46766(N)	083 52 58.90238(W)	AD(	) 1
MC1753	ELLIP H (04/01/98)	166.691 (m)		GP(	) 4 1
MC1753	NAD 83(1994)-	41 25 21.46759(N)	083 52 58.90226(W)	AD(	) 1
MC1753	NAD 83(1986)-	41 25 21.47825(N)	083 52 58.91598(W)	AD(	) 1

MC1753  
MC1753.Superseded values are not recommended for survey control.  
MC1753  
MC1753.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
MC1753.See file dsdata.txt to determine how the superseded data were derived.  
MC1753  
MC1753\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKF5907589686(NAD 83)  
MC1753  
MC1753\_MARKER: DD = SURVEY DISK  
MC1753\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
MC1753\_STAMPING: HENRY 2 1993  
MC1753\_MARK LOGO: OH-095  
MC1753\_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT  
MC1753\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
MC1753+STABILITY: SURFACE MOTION  
MC1753\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC1753+SATELLITE: SATELLITE OBSERVATIONS - 1993  
MC1753



MC1753	HISTORY	- Date	Condition	Report By
MC1753	HISTORY	- 1993	MONUMENTED	OH-095

MC1753

MC1753

MC1753

STATION DESCRIPTION

MC1753'DESCRIBED BY LUCAS COUNTY OHIO 1993

MC1753'THE STATION IS LOCATED IN LUCAS COUNTY, OHIO ABOUT 1.5 MILES WEST OF  
MC1753'THE VILLAGE OF GRAND RAPIDS.

MC1753'TO REACH THE STATION FROM THE INTERSECTION OF U.S. 24 AND STATE ROUTE  
MC1753'578 PROCEED WEST ALONG U.S. 24 1.25 MILES TO ITS INTERSECTION WITH  
MC1753'HENRY-LUCAS ROAD. TURN RIGHT AND PROCEED NORTH ALONG HENRY-LUCAS  
MC1753'ROAD 0.4 MILES TO A WIRE FENCE CORNER ON THE EAST SIDE OF THE ROAD  
MC1753'AND THE STATION ON THE RIGHT APPROXIMATELY 150 FEET SOUTH OF A BRIDGE  
MC1753'OVER KROHN CREEK.

MC1753'THE STATION IS A 3.5 INCH BRASS LUCAS COUNTY ENGINEER DISK SET IN THE  
MC1753'TOP OF A 12 INCH DIAMETER CONCRETE MONUMENT 0.1 FEET BELOW THE GROUND  
MC1753'SURFACE IS STAMPED --HENRY 2 1993--.

MC1753'THE STATION IS 2.5 FEET WEST FROM A WIRE FENCE, 6.6 FEET NORTH FROM A  
MC1753'LUCAS COUNTY BENCH MARK WITH A BROKEN TOP, 20.6 FEET NORTHEAST FROM A  
MC1753'RAIL ROAD SPIKE IN THE CENTERLINE OF HENRY-LUCAS ROAD, AND 89.3 FEET  
MC1753'SOUTHEAST FROM A POWER POLE.

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 31, 2016
MC0994 *****
MC0994 DESIGNATION - J 317
MC0994 PID - MC0994
MC0994 STATE/COUNTY- OH/OTTAWA
MC0994 COUNTRY - US
MC0994 USGS QUAD - PORT CLINTON (1969)
MC0994
MC0994 *CURRENT SURVEY CONTROL
MC0994
MC0994* NAD 83(1986) POSITION- 41 30 21.4 (N) 082 53 22.9 (W) HD_HELD2
MC0994* NAVD 88 ORTHO HEIGHT - 178.398 (meters) 585.29 (feet) ADJUSTED
MC0994
MC0994 GEOID HEIGHT - -35.538 (meters) GEOID12B
MC0994 DYNAMIC HEIGHT - 178.325 (meters) 585.05 (feet) COMP
MC0994 MODELED GRAVITY - 980,208.7 (mgal) NAVD 88
MC0994
MC0994 VERT ORDER - FIRST CLASS II
MC0994
MC0994.The horizontal coordinates were established by autonomous hand held GPS
MC0994.observations and have an estimated accuracy of +/- 10 meters.
MC0994.
MC0994.The orthometric height was determined by differential leveling and
MC0994.adjusted by the NATIONAL GEODETIC SURVEY
MC0994.in June 1991.
MC0994
MC0994.Significant digits in the geoid height do not necessarily reflect accuracy.
MC0994.GEOID12B height accuracy estimate available here.
MC0994
MC0994.Photographs are available for this station.
MC0994
MC0994.The dynamic height is computed by dividing the NAVD 88
MC0994.geopotential number by the normal gravity value computed on the
MC0994.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MC0994.degrees latitude (g = 980.6199 gals.).
MC0994
MC0994.The modeled gravity was interpolated from observed gravity values.
MC0994
MC0994; North East Units Estimated Accuracy
MC0994;SPC OH N - 204,320. 567,466. MT (+/- 10 meters HH2 GPS)
MC0994
MC0994 SUPERSEDED SURVEY CONTROL
MC0994
MC0994 NGVD 29 (06/03/92) 178.609 (m) 585.99 (f) ADJUSTED 1 2
MC0994
MC0994.Superseded values are not recommended for survey control.
MC0994
MC0994.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MC0994.See file dsdata.txt to determine how the superseded data were derived.

```

MC0994  
MC0994\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF4229196647(NAD 83)  
MC0994  
MC0994\_MARKER: I = METAL ROD  
MC0994\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+) )  
MC0994\_STAMPING: J 317 1980  
MC0994\_PROJECTION: RECESSED 2 CENTIMETERS  
MC0994\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
MC0994\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC0994+SATELLITE: SATELLITE OBSERVATIONS - May 23, 2009  
MC0994\_ROD/PIPE-DEPTH: 4.0 meters  
MC0994  

MC0994	HISTORY	- Date	Condition	Report By
MC0994	HISTORY	- 1980	MONUMENTED	NGS
MC0994	HISTORY	- 20040729	GOOD	OHDT
MC0994	HISTORY	- 20090523	GOOD	JCLS

MC0994  
MC0994  

STATION DESCRIPTION

MC0994  
MC0994'DESCRIBED BY NATIONAL GEODETIC SURVEY 1980  
MC0994'4.3 KM EAST FROM PORT CLINTON.  
MC0994'4.3 KILOMETERS (2.7 MILES) EAST ALONG THE NEW YORK CENTRAL RAILROAD  
MC0994'FROM THE BRIDGE OVER MADISON STREET IN PORT CLINTON, AT THE JUNCTION  
MC0994'OF PLASTERBED ROAD, AT THE NORTHEAST CORNER OF A 7 FOOT CHAIN LINK  
MC0994'FENCE AROUND A LARGE FACTORY (CELOTEX CORP.), 19.1 METERS (62.6 FEET)  
MC0994'SOUTH OF THE SOUTH RAIL OF THE MOST SOUTHERLY OF 3 SETS OF TRACKS,  
MC0994'9.6 METERS (31.5 FEET) WEST OF THE CENTER LINE OF PLASTERBED ROAD,  
MC0994'4.5 METERS (14.8 FEET) WEST OF A POWER POLE WITH ONE GUY WIRE, AND  
MC0994'0.75 METER (2.4 FEET) NORTH OF THE NORTHEAST CORNER OF THE CHAIN  
MC0994'LINK FENCE. NOTE, THE ROD WAS DRIVEN TO REFUSAL.  
MC0994'THE MARK IS 1.0 M BELOW TRACKS.  
MC0994  

STATION RECOVERY (2004)

MC0994  
MC0994  
MC0994'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2004 (JS)  
MC0994'RAILROAD NOW NORFOLK SOUTHERN  
MC0994'NEW REFERENCE TIES  
MC0994'31.5 FEET WEST OF PLASTERBED ROAD  
MC0994'2 FEET NORTHWEST OF POWER POLE  
MC0994'2.4 FEET TO FENCE CORNER  
MC0994'  
MC0994  

STATION RECOVERY (2009)

MC0994  
MC0994  
MC0994'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2009 (MRY)  
MC0994'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 13, 2016
MD0054 *****
MD0054 DESIGNATION -   K 16
MD0054 PID          -   MD0054
MD0054 STATE/COUNTY- OH/FULTON
MD0054 COUNTRY      -   US
MD0054 USGS QUAD    -   WAUSEON (1977)
MD0054
MD0054                                *CURRENT SURVEY CONTROL
MD0054
MD0054* NAD 83(2011) POSITION- 41 32 43.20290(N) 084 08 51.38464(W) ADJUSTED
MD0054* NAD 83(2011) ELLIP HT- 199.787 (meters) (06/27/12) ADJUSTED
MD0054* NAD 83(2011) EPOCH   - 2010.00
MD0054* NAVD 88 ORTHO HEIGHT - 234.785 (meters) 770.29 (feet) ADJUSTED
MD0054
MD0054 NAD 83(2011) X   - 487,478.046 (meters) COMP
MD0054 NAD 83(2011) Y   - -4,755,871.786 (meters) COMP
MD0054 NAD 83(2011) Z   - 4,208,074.425 (meters) COMP
MD0054 LAPLACE CORR     - -5.87 (seconds) DEFLEC12B
MD0054 GEOID HEIGHT     - -34.979 (meters) GEOID12B
MD0054 DYNAMIC HEIGHT   - 234.690 (meters) 769.98 (feet) COMP
MD0054 MODELED GRAVITY   - 980,212.8 (mgal) NAVD 88
MD0054
MD0054 VERT ORDER       - SECOND CLASS 0
MD0054
MD0054 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MD0054 Standards:
MD0054      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
MD0054      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
MD0054 -----
MD0054 NETWORK      1.55   1.80              0.72   0.51   0.92      0.03309774
MD0054 -----
MD0054 Click here for local accuracies and other accuracy information.
MD0054
MD0054
MD0054.The horizontal coordinates were established by GPS observations
MD0054.and adjusted by the National Geodetic Survey in June 2012.
MD0054
MD0054.NAD 83(2011) refers to NAD 83 coordinates where the reference
MD0054.frame has been affixed to the stable North American tectonic plate. See
MD0054.NA2011 for more information.
MD0054
MD0054.The horizontal coordinates are valid at the epoch date displayed above
MD0054.which is a decimal equivalence of Year/Month/Day.
MD0054
MD0054.The orthometric height was determined by differential leveling and
MD0054.adjusted by the NATIONAL GEODETIC SURVEY
MD0054.in June 1991.
MD0054

```



MD0054.Significant digits in the geoid height do not necessarily reflect accuracy.  
MD0054.GEOID12B height accuracy estimate available [here](#).

MD0054

MD0054.Photographs are available for this station.

MD0054

MD0054.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MD0054

MD0054.The Laplace correction was computed from DEFLEC12B derived deflections.

MD0054

MD0054.The ellipsoidal height was determined by GPS observations

MD0054.and is referenced to NAD 83.

MD0054

MD0054.The dynamic height is computed by dividing the NAVD 88

MD0054.geopotential number by the normal gravity value computed on the

MD0054.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MD0054.degrees latitude (g = 980.6199 gals.).

MD0054

MD0054.The modeled gravity was interpolated from observed gravity values.

MD0054

MD0054. The following values were computed from the NAD 83(2011) position.

MD0054

MD0054;		North	East	Units	Scale	Factor	Converg.
MD0054;SPC OH N	-	209,920.834	462,538.896	MT	0.99997384	-1 04 56.6	
MD0054;SPC OH N	-	688,715.27	1,517,513.03	sFT	0.99997384	-1 04 56.6	
MD0054;UTM 16	-	4,603,226.561	737,914.531	MT	1.00029663	+1 53 33.5	
MD0054!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MD0054!SPC OH N	-	0.99996866	x	0.99997384	=	0.99994251	
MD0054!UTM 16	-	0.99996866	x	1.00029663	=	1.00026529	

MD0054

MD0054

#### SUPERSEDED SURVEY CONTROL

MD0054

MD0054	NAD 83(2007)-	41 32 43.20300(N)	084 08 51.38533(W)	AD(2002.00)	0
MD0054	ELLIP H (02/10/07)	199.807 (m)		GP(2002.00)	
MD0054	ELLIP H (10/07/05)	199.802 (m)		GP(	) 4 1
MD0054	NAD 83(1995)-	41 32 43.20279(N)	084 08 51.38495(W)	AD(	) 1
MD0054	ELLIP H (04/01/98)	199.843 (m)		GP(	) 4 1
MD0054	NAD 83(1994)-	41 32 43.20278(N)	084 08 51.38492(W)	AD(	) 1
MD0054	NAD 83(1986)-	41 32 43.21075(N)	084 08 51.39812(W)	AD(	) 1
MD0054	NAVD 88 (07/11/96)	234.79 (m)	770.3 (f)	LEVELING	3
MD0054	NGVD 29 (??/??/92)	234.966 (m)	770.88 (f)	ADJ UNCH	2 0

MD0054

MD0054.Superseded values are not recommended for survey control.

MD0054

MD0054.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MD0054.See file dsdata.txt to determine how the superseded data were derived.

MD0054

MD0054\_U.S. NATIONAL GRID SPATIAL ADDRESS: 16TGM3791403226(NAD 83)

MD0054

MD0054\_MARKER: DB = BENCH MARK DISK

MD0054\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

MD0054\_STAMPING: K 16 1934

MD0054\_MARK LOGO: CGS

MD0054\_PROJECTION: FLUSH

MD0054\_MAGNETIC: N = NO MAGNETIC MATERIAL



MD0054\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
MD0054+STABILITY: SURFACE MOTION  
MD0054\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MD0054+SATELLITE: SATELLITE OBSERVATIONS - May 30, 2014

MD0054

MD0054	HISTORY	- Date	Condition	Report By
MD0054	HISTORY	- 1934	MONUMENTED	CGS
MD0054	HISTORY	- 1934	GOOD	CGS
MD0054	HISTORY	- 19960130	GOOD	WOOLPT
MD0054	HISTORY	- 20090523	GOOD	JCLS
MD0054	HISTORY	- 20140530	GOOD	WOOLPT

MD0054

MD0054

#### STATION DESCRIPTION

MD0054

MD0054'DESCRIBED BY COAST AND GEODETIC SURVEY 1934

MD0054'AT WAUSEON.

MD0054'AT WAUSEON, FULTON COUNTY, ON THE DETROIT, TOLEDO AND IRONTON  
MD0054'RAILROAD, ABOUT 150 YARDS SOUTH OF THE CROSSING OF THE NEW YORK  
MD0054'CENTRAL RAILROAD, 21 FEET NORTHWEST OF A SEMAPHORE SIGNAL TOWER,  
MD0054'IN THE TOP OF THE SOUTHEAST CORNER OF A CONCRETE SWITCH HINGE  
MD0054'BLOCK, 6 FEET WEST OF THE WEST RAIL, AND ABOUT 6 INCHES LOWER  
MD0054'THAN THE TOP OF THE RAIL. A STANDARD DISK, STAMPED K 16 1934.

MD0054

MD0054

#### STATION RECOVERY (1996)

MD0054

MD0054'RECOVERY NOTE BY WOOLPERT CONSULTANTS 1996 (BS)

MD0054'RECOVERED AS DESCRIBED.

MD0054

MD0054

#### STATION RECOVERY (2009)

MD0054

MD0054'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2009 (MRY)

MD0054'RECOVERED IN GOOD CONDITION.

MD0054

MD0054

#### STATION RECOVERY (2014)

MD0054

MD0054'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2014 (DMH)

MD0054'THE DETROIT, TOLEDO AND IRONTON RAILROAD HAS BEEN ABANDONED.

MD0054'

MD0054'THE STATION IS LOCATED ABOUT 8.4 MI (13.5 KM) EAST-NORTHEAST OF  
MD0054'ARCHBOLD, 7.6 MI (12.2 KM) WEST-SOUTHWEST OF DELTA AND IN THE TOWN OF  
MD0054'WAUSEON, OH.

MD0054'

MD0054'TO REACH FROM THE INTERSECTION OF ELM STREET AND FULTON STREET IN  
MD0054'WAUSEON, GO SOUTHERLY ON FULTON STREET FOR 0.2 MI (0.3 KM) TO A CROSS  
MD0054'ROAD. TURN RIGHT AND GO WESTERLY ON WEST CHESTNUT STREET FOR 0.35 MI  
MD0054'(0.6 KM) TO THE REMAINS OF RAILROAD GRADE AND THE STATION ON THE  
MD0054'RIGHT.

MD0054'

MD0054'THE DISK IS SET IN THE SOUTHEAST CORNER OF A 24 INCH (61 CM) SQUARE  
MD0054'CONCRETE PAD. IT IS 56 FT (17.1 M) NORTH OF THE CENTERLINE OF WEST  
MD0054'CHESTNUT STREET, 49.5 FT (15.1 M) NORTHWEST OF UTILITY POLE 049AR15,  
MD0054'34.6 FT (10.5 M) EAST OF THE SOUTHEAST CORNER OF A TWO-STORY HOUSE AND  
MD0054'1.65 FT (0.5 M) SOUTHEAST OF A CARSONITE WITNESS POST.

\*\*\* retrieval complete.



Elapsed Time = 00:00:03

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,   Retrieval Date = MAY 31, 2016
MC1022 *****
MC1022 DESIGNATION -   N 316
MC1022 PID          -   MC1022
MC1022 STATE/COUNTY- OH/OTTAWA
MC1022 COUNTRY      -   US
MC1022 USGS QUAD    -   GENOA (1988)
MC1022
MC1022                                *CURRENT SURVEY CONTROL
MC1022
MC1022* NAD 83(1986) POSITION- 41 33 32.61    (N) 083 20 19.34    (W)  HD_HELD1
MC1022* NAVD 88 ORTHO HEIGHT -   182.920 (meters)          600.13    (feet) ADJUSTED
MC1022
MC1022 GEOID HEIGHT    -           -35.490 (meters)                GEOID12B
MC1022 DYNAMIC HEIGHT  -           182.847 (meters)          599.89    (feet) COMP
MC1022 MODELED GRAVITY -   980,218.8    (mgal)                NAVD 88
MC1022
MC1022 VERT ORDER      -   FIRST      CLASS II
MC1022
MC1022.The horizontal coordinates were determined by differentially corrected
MC1022.hand held GPS observations or other comparable positioning techniques
MC1022.and have an estimated accuracy of +/- 3 meters.
MC1022.
MC1022.The orthometric height was determined by differential leveling and
MC1022.adjusted by the NATIONAL GEODETIC SURVEY
MC1022.in June 1991.
MC1022
MC1022.Significant digits in the geoid height do not necessarily reflect accuracy.
MC1022.GEOID12B height accuracy estimate available here.
MC1022
MC1022.The dynamic height is computed by dividing the NAVD 88
MC1022.geopotential number by the normal gravity value computed on the
MC1022.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MC1022.degrees latitude (g = 980.6199 gals.).
MC1022
MC1022.The modeled gravity was interpolated from observed gravity values.
MC1022
MC1022;                North      East      Units  Estimated Accuracy
MC1022;SPC OH N      -   210,483.0    530,037.7    MT   (+/- 3 meters HH1 GPS)
MC1022
MC1022                                SUPERSEDED SURVEY CONTROL
MC1022
MC1022 NGVD 29 (06/03/92) 183.119 (m)          600.78    (f) ADJUSTED    1 2
MC1022
MC1022.Superseded values are not recommended for survey control.
MC1022
MC1022.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MC1022.See file dsdata.txt to determine how the superseded data were derived.
MC1022

```



MC1022\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLG0497603462(NAD 83)

MC1022

MC1022\_MARKER: I = METAL ROD

MC1022\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

MC1022\_STAMPING: N 316 1980

MC1022\_PROJECTION: FLUSH

MC1022\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

MC1022\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC1022+SATELLITE: SATELLITE OBSERVATIONS - July 28, 2004

MC1022\_ROD/PIPE-DEPTH: 4.0 meters

MC1022

MC1022	HISTORY	- Date	Condition	Report By
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MC1022	HISTORY	- 1980	MONUMENTED	NGS
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MC1022	HISTORY	- 20040728	GOOD	OHDT
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MC1022

MC1022 STATION DESCRIPTION

MC1022

MC1022'DESCRIBED BY NATIONAL GEODETIC SURVEY 1980

MC1022'1.7 KM SE FROM CLAY CENTER.

MC1022'1.7 KILOMETERS (1.05 MILES) SOUTHEAST ALONG THE PENN CENTRAL RAILROAD

MC1022'FROM THE CROSSING OF CLAY ROAD AT CLAY CENTER, AT THE JUNCTION OF

MC1022'MARTIN-WILLISTON ROAD, 41.8 METERS (137.0 FEET) SOUTHEAST OF THE

MC1022'CENTER OF MARTIN-WILLISTON ROAD, 28.4 METERS (93.0 FEET) SOUTHWEST

MC1022'OF THE SOUTHWEST RAIL OF THE TRACKS, 25.5 METERS (83.5 FEET)

MC1022'WEST-NORTHWEST OF THE WEST END OF A BRIDGE OVER SOUTH BRANCH TURTLE

MC1022'CREEK, 3.35 METERS (11.0 FEET) NORTHEAST OF A POWER POLE.

MC1022'NOTE--ROD DRIVEN TO REFUSAL AT 4.0 METERS.

MC1022'THE MARK IS 0.3 METERS SW FROM A WITNESS POST.

MC1022'THE MARK IS 2.0 M BELOW TRACKS.

MC1022

MC1022 STATION RECOVERY (2004)

MC1022

MC1022'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2004 (JS)

MC1022'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 31, 2016
MC1253 *****
MC1253 CBN - This is a Cooperative Base Network Control Station.
MC1253 DESIGNATION - PENINSULA
MC1253 PID - MC1253
MC1253 STATE/COUNTY- OH/OTTAWA
MC1253 COUNTRY - US
MC1253 USGS QUAD - GYPSUM (1980)
MC1253
MC1253 *CURRENT SURVEY CONTROL
MC1253
MC1253* NAD 83(2011) POSITION- 41 30 30.72672(N) 082 52 13.49658(W) ADJUSTED
MC1253* NAD 83(2011) ELLIP HT- 144.126 (meters) (06/27/12) ADJUSTED
MC1253* NAD 83(2011) EPOCH - 2010.00
MC1253* NAVD 88 ORTHO HEIGHT - 179.6 (meters) 589. (feet) GPS OBS
MC1253
MC1253 NAVD 88 orthometric height was determined with geoid model GEOID93
MC1253 GEOID HEIGHT - -35.504 (meters) GEOID93
MC1253 GEOID HEIGHT - -35.533 (meters) GEOID12B
MC1253 NAD 83(2011) X - 593,693.337 (meters) COMP
MC1253 NAD 83(2011) Y - -4,746,472.047 (meters) COMP
MC1253 NAD 83(2011) Z - 4,204,977.701 (meters) COMP
MC1253 LAPLACE CORR - 0.69 (seconds) DEFLEC12B
MC1253
MC1253 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC1253 Standards:
MC1253 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC1253 Horiz Ellip SD_N SD_E SD_h (unitless)
MC1253 -----
MC1253 NETWORK 1.16 2.39 0.53 0.40 1.22 -0.06043107
MC1253 -----
MC1253 Click here for local accuracies and other accuracy information.
MC1253
MC1253
MC1253.This mark is at Carl R Keller Field Airport (PCW)
MC1253
MC1253.The horizontal coordinates were established by GPS observations
MC1253.and adjusted by the National Geodetic Survey in June 2012.
MC1253
MC1253.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC1253.frame has been affixed to the stable North American tectonic plate. See
MC1253.NA2011 for more information.
MC1253
MC1253.The horizontal coordinates are valid at the epoch date displayed above
MC1253.which is a decimal equivalence of Year/Month/Day.
MC1253
MC1253.The orthometric height was determined by GPS observations and a
MC1253.high-resolution geoid model.
MC1253

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MC1253. Significant digits in the geoid height do not necessarily reflect accuracy.  
MC1253. GEOID12B height accuracy estimate available [here](#).

MC1253

MC1253. Photographs are available for this station.

MC1253

MC1253. The X, Y, and Z were computed from the position and the ellipsoidal ht.

MC1253

MC1253. The Laplace correction was computed from DEFLEC12B derived deflections.

MC1253

MC1253. The ellipsoidal height was determined by GPS observations

MC1253. and is referenced to NAD 83.

MC1253

MC1253. The following values were computed from the NAD 83(2011) position.

MC1253

MC1253;		North	East	Units	Scale Factor	Converg.
MC1253;SPC OH N	-	204,601.126	569,076.829	MT	0.99996869	-0 14 36.0
MC1253;SPC OH N	-	671,262.19	1,867,046.23	sFT	0.99996869	-0 14 36.0
MC1253;UTM 17	-	4,596,900.636	343,906.996	MT	0.99989985	-1 14 23.4

MC1253

MC1253! - Elev Factor x Scale Factor = Combined Factor

MC1253!SPC OH N - 0.99997739 x 0.99996869 = 0.99994608

MC1253!UTM 17 - 0.99997739 x 0.99989985 = 0.99987725

MC1253

MC1253:		Primary Azimuth Mark	Grid Az
MC1253:SPC OH N	-	PENINSULA AZ MK	091 44 07.4
MC1253:UTM 17	-	PENINSULA AZ MK	092 43 54.8

MC1253

MC1253	PID	Reference Object	Distance	Geod. Az
MC1253				ddmmss.s
MC1253	MC1541	CLINTPORT	191.996 METERS	03006
MC1253	MC1254	DANBURY ST PAUL LUTH CH SPIRE	APPROX. 5.5 KM	0712646.7
MC1253	AJ1528	PENINSULA AZ MK		0912931.4
MC1253	MC1213	BAY BRIDGE MEDUSA CEMENT STK	APPROX. 6.6 KM	1285340.9
MC1253	MC1240	GYPSUM US GYPSUM CO WATER TANK	APPROX. 1.6 KM	1941309.3
MC1253	AJ1527	PENINSULA RM 2	29.036 METERS	25440
MC1253	MC1260	PORT CLINTON MUNICIPAL TANK	APPROX. 5.8 KM	2660358.8
MC1253	MC1257	PORT CLINTON COUNTY WATER TANK	APPROX. 1.9 KM	2683242.3
MC1253	MC1259	PORT CLINTON COURTHOUSE	APPROX. 5.8 KM	2712329.2
MC1253	AJ1526	PENINSULA RM 1	25.060 METERS	35943

MC1253

MC1253

#### SUPERSEDED SURVEY CONTROL

MC1253

MC1253	NAD 83(2007)-	41 30 30.72696(N)	082 52 13.49721(W)	AD(2002.00)	0
MC1253	ELLIP H (02/10/07)	144.147 (m)		GP(2002.00)	
MC1253	ELLIP H (03/08/05)	144.141 (m)		GP(	) 4 2
MC1253	NAD 83(1995)-	41 30 30.72684(N)	082 52 13.49737(W)	AD(	) B
MC1253	ELLIP H (08/20/96)	144.156 (m)		GP(	) 4 2
MC1253	NAD 83(1986)-	41 30 30.73206(N)	082 52 13.51501(W)	AD(	) 3
MC1253	NAD 27	- 41 30 30.54908(N)	082 52 13.83386(W)	AD(	) 3
MC1253	NGVD 29 (08/25/89)	180.0 (m)	UNKNOWN model used	GPS OBS	
MC1253	NGVD 29 (02/23/89)	179.7 (m)	RAPSU86 model used	GPS OBS	

MC1253

MC1253. Superseded values are not recommended for survey control.



MC1253. NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
MC1253. See file dsdata.txt to determine how the superseded data were derived.  
MC1253

MC1253  
MC1253\_MARKER: DS = TRIANGULATION STATION DISK  
MC1253\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
MC1253\_STAMPING: PENINSULA 1956  
MC1253 MARK LOGO: CGS

MC1253\_MAGNETIC: N = NO MAGNETIC MATERIAL  
MC1253\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
MC1253+STABILITY: SURFACE MOTION  
MC1253\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC1253+SATELLITE: SATELLITE OBSERVATIONS - June 06, 2015

MC1253	HISTORY	- Date	Condition	Report By
MC1253	HISTORY	- 1956	MONUMENTED	CGS
MC1253	HISTORY	- 1956	GOOD	CGS
MC1253	HISTORY	- 1960	SEE DESCRIPTION	THOMAS
MC1253	HISTORY	- 1971	SEE DESCRIPTION	OHHD
MC1253	HISTORY	- 19841018	GOOD	NGS
MC1253	HISTORY	- 1986	GOOD	NGS
MC1253	HISTORY	- 19870930	GOOD	
MC1253	HISTORY	- 19880816	GOOD	NGS
MC1253	HISTORY	- 19881001	GOOD	OHDR
MC1253	HISTORY	- 19901024	GOOD	NGS
MC1253	HISTORY	- 19951102	GOOD	NGS
MC1253	HISTORY	- 20050416	GOOD	WOOLPT
MC1253	HISTORY	- 20150606	GOOD	GEACAC

MC1253'DESCIBED BY COAST AND GEODETIC SURVEY 1956 (RHT)  
MC1253'THE STATION IS LOCATED ABOUT 2 MILES EAST OF CLINTON AND ABOUT 9  
MC1253'MILES NORTHWEST OF SANDUSKY. IT  
MC1253'IS 13 FEET NORTH OF A WHITE WITNESS POST, 20 FEET NORTHWEST OF A  
MC1253'LIGHT POLE AND 71 FEET NORTH OF THE  
MC1253'CENTERLINE OF STATE HIGHWAY NO. 2. IT IS 24 FEET SOUTH OF THE  
MC1253'CENTERLINE OF A DRIVEWAY. THE MARK IS SET  
MC1253'FLUSH WITH THE SURFACE AND THE DISK IS STAMPED  
MC1253'PENINSULA 1956.  
MC1253'  
MC1253'REFERENCE MARK NO. 1 IS 29 FEET WEST OF THE CENTERLINE OF A DRIVEWAY  
MC1253'AND 67 FEET EAST OF THE  
MC1253'CENTERLINE OF A DRIVEWAY. THE MARK IS SET FLUSH WITH THE SURFACE AND  
MC1253'THE DISK IS STAMPED PENINSULA NO 1  
MC1253'1956.  
MC1253'  
MC1253'REFERENCE MARK NO. 2 IS 2 FEET NORTH OF A UTILITY POLE, 43 FEET NORTH  
MC1253'OF THE CENTERLINE OF STATE HIGHWAY  
MC1253'NO. 2 AND 22 FEET WEST OF THE CENTERLINE OF A DRIVEWAY. THE MARK  
MC1253'PROJECTS 6 INCHES AND THE DISK IS  
MC1253'STAMPED PENINSULA NO 2 1956.



MC1253'  
 MC1253'AZIMUTH MARK IS 5.5 FEET EAST-SOUTHEAST OF A UTILITY POLE AND 35 FEET  
 MC1253'NORTH OF THE CENTERLINE OF  
 MC1253'STATE HIGHWAY NO. 2. THE MARK IS SET FLUSH WITH THE SURFACE AND THE  
 MC1253'DISK IS STAMPED PENINSULA 1956.  
 MC1253'  
 MC1253'TO REACH FROM THE NORTHEAST CORNER OF THE COURTHOUSE IN SANDUSKY GO  
 MC1253'WESTERLY ON US HIGHWAY 6 AND  
 MC1253'STATE HIGHWAYS 2, 12, 101 FOR 1.45 MILES TO JUNCTION. TAKE THE RIGHT  
 MC1253'FORK AND CONTINUE ON US HIGHWAY 6  
 MC1253'AND STATE HIGHWAY 2 FOR 2.0 MILES TO WHERE US HIGHWAY  
 MC1253'6 TURNS LEFT. CONTINUE STRAIGHT AHEAD FOR 7.1 MILES  
 MC1253'TO A SOHIO GAS STATION ON THE LEFT  
 MC1253'AND AZIMUTH MARK ON RIGHT AS DESCRIBED. CONTINUE STRAIGHT AHEAD ON  
 MC1253'STATE HIGHWAY 2 FOR 0.5 MILES TO  
 MC1253'DRIVEWAY TO AIRPORT AND STATION ON RIGHT AS DESCRIBED.  
 MC1253'  
 MC1253'HEIGHT OF LIGHT ABOVE STATION MARK - 23 METERS.  
 MC1253  
 MC1253 STATION RECOVERY (1956)  
 MC1253  
 MC1253'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1956  
 MC1253'RECOVERED IN GOOD CONDITION.  
 MC1253  
 MC1253 STATION RECOVERY (1960)  
 MC1253  
 MC1253'RECOVERY NOTE BY THOMAS ENG AND SURV 1960 (HBW)  
 MC1253'ALL MARKS WERE FOUND UNDISTURBED. THE AZIMUTH MARK CANNOT BE SEEN  
 MC1253'FROM 5 FEET ABOVE THE  
 MC1253'STATION DUE TO AN 18-INCH UTILITY POLE WHICH OBSTRUCTS THE LINE OF  
 MC1253'SITE.  
 MC1253  
 MC1253 STATION RECOVERY (1971)  
 MC1253  
 MC1253'RECOVERY NOTE BY OHIO HIGHWAY DEPARTMENT (NOW OHDT) 1971 (RS)  
 MC1253'PENINSULA 1956 GOOD - INSTALLED STEEL WITNESS POST  
 MC1253'PENINSULA NO  
 MC1253'1-1956 GOOD - INSTALLED STEEL WITNESS POST  
 MC1253'PENINSULA NO 2-1956 GOOD -  
 MC1253'INSTALLED STEEL WITNESS POST  
 MC1253'AZI. PENINSULA 1956 GOOD - INSTALLED STEEL  
 MC1253'WITNESS POST  
 MC1253'  
 MC1253'SR 2 IS NOW OLD SR2.  
 MC1253'  
 MC1253'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN- 9 MILES PLUS/MINUS  
 MC1253'NW OF SANDUSKY.  
 MC1253  
 MC1253 STATION RECOVERY (1984)  
 MC1253  
 MC1253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1984 (CLN)  
 MC1253'THE STATION MARK AND AZIMUTH MARK WERE RECOVERED IN GOOD CONDITION  
 MC1253'EXCEPT THE AZIMUTH MARK WAS NO LONGER VISIBLE FROM THE STATION.  
 MC1253'REFERENCE MARK 2 WAS FOUND INTACT BUT LEANING SLIGHTLY TO THE NORTH.  
 MC1253'REFERENCE MARK 1 WAS FOUND WITH THE DISK SHEARED OFF. THE DISTANCE TO

MC1253'RM 2 CHECKED PREVIOUS DATA BUT THE DIRECTION DIFFERED BY 8 MINUTES AND MC1253'8 SECONDS. RM 3 WAS SET IN A DRILL HOLE IN THE REMAINING PORTION OF MC1253'THE RM 1 MONUMENT. AZ MK 2 WAS ESTABLISHED AND THE ORIGINAL AZ MK WAS MC1253'THEN DESTROYED. A NEW DESCRIPTION FOLLOWS.

MC1253'THE STATION IS LOCATED ABOUT 3 KM (1.85 MI) EAST OF CLINTON, 16 KM MC1253'(9.95 MI) NORTHWEST OF SANDUSKY, AT THE NORTH EDGE OF THE TOWN OF MC1253'GYPSUM AND AT THE SOUTH END OF THE ERIE-OTTAWA-SANDUSKY REGIONAL MC1253'AIRPORT. TO REACH THE STATION FROM THE AIRPORT IN GYPSUM PROCEED TO MC1253'THE SOUTH END OF THE RUNWAY AREA AND THE STATION IN THE NORTHEAST MC1253'ANGLE OF THE INTERSECTION OF COUNTY ROUTE 8 (STATE ROAD) AND COUNTY MC1253'ROUTE 33 (GYPSUM ROAD).

MC1253'THE STATION IS A STANDARD CGS DISK STAMPED---PENINSULA 1956---, SET MC1253'INTO THE TOP OF A ROUND CONCRETE MONUMENT, 12 INCHES (30 CM) IN MC1253'DIAMETER, FLUSH WITH GROUND. THE STATION IS LOCATED 34.7 METERS MC1253'(113.8 FT) WEST-NORTHWEST FROM A POWER POLE WITH THREE TRANSFORMERS, MC1253'32.3 METERS (106.0 FT) NORTHEAST FROM THE CENTERLINE OF THE MC1253'INTERSECTION, 20.4 METERS (66.9 FT) NORTH FROM THE CENTERLINE OF MC1253'COUNTY ROUTE 8 (STATE ROAD), 7.3 METERS (24.0 FT) NORTHEAST FROM THE MC1253'WEST END OF THE GREEN AND WHITE AIRPORT SIGN.

MC1253'REFERENCE MARK NO 2 IS A STANDARD CGS DISK STAMPED---PENINSULA NO 2 MC1253'1956---, SET INTO THE TOP OF A ROUND CONCRETE MONUMENT, 12 INCHES (30 MC1253'CM) IN DIAMETER, PROJECTING 10 INCHES (25 CM) ABOVE THE GROUND. THE MC1253'STATION IS LOCATED 14.0 METERS (45.9 FT) NORTH-NORTHWEST FROM THE MC1253'CENTERLINE OF THE INTERSECTION, 2.1 METERS (6.9 FT) NORTHWEST FROM A MC1253'STOP SIGN, 0.76 METERS (2.49 FT) NORTH FROM A UTILITY POLE, 0.30 MC1253'METERS (0.98 FT) EAST FROM A METAL WITNESS POST, AND 0.3 METERS (1.0 MC1253'FT) HIGHER THAN THE STATION.

MC1253'REFERENCE MARK NO 3 IS A STANDARD NGS DISK STAMPED---PENINSULA 1956 NO MC1253'3 1984---, SET INTO THE TOP OF A SQUARE CONCRETE MONUMENT, 12 INCHES MC1253'(30 CM) IN DIAMETER, FLUSH WITH GROUND. THE STATION IS LOCATED 46.6 MC1253'METERS (152.9 FT) SOUTH FROM THE SOUTHWEST CORNER OF THE ISLAND MC1253'AIRLINE BUILDING, 37.2 METERS (122.0 FT) NORTH FROM THE CENTERLINE OF MC1253'STATE ROAD (COUNTY ROAD 8), 20.7 METERS (67.9 FT) EAST FROM THE MC1253'CENTERLINE OF GYPSUM ROAD (COUNTY ROUTE 33) AND 0.3 METERS (1.0 FT) MC1253'LOWER THAN THE STATION.

MC1253'AZIMUTH MARK NO 2 IS A STANDARD NGS DISK STAMPED---PENINSULA 1956 NO 2 MC1253'1984---, SET IN A DRILL HOLE IN THE WALKWAY PORTION OF THE SOUTHEAST MC1253'ABUTMENT OF THE STATE ROUTE 53 BRIDGE OVER STATE ROUTE 2. THE STATION MC1253'IS LOCATED 6.6 METERS (21.7 FT) EAST FROM THE CENTERLINE OF STATE MC1253'ROUTE 53. TO REACH THE AZIMUTH MARK FROM THE STATION GO EAST ON MC1253'COUNTY ROUTE 8 FOR 1.0 KM (0.60 MI) TO THE JUNCTION WITH STATE ROUTE MC1253'53. TURN RIGHT AND GO 0.3 KM (0.20 MI) SOUTH ON STATE ROUTE 53 TO MC1253'BRIDGE OVER STATE ROUTE 2 AND THE MARK IN THE EAST END OF THE SOUTH MC1253'ABUTMENT.

MC1253

MC1253

STATION RECOVERY (1986)

MC1253

MC1253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1986

MC1253'THE STATION IS LOCATED 9 MILES NORTHWEST OF SANDUSKY AND 2 MILES EAST MC1253'OF PORT CLINTON IN FORM OF THE EPROT CLINTON AIRPORT, KELLER FIELD.

MC1253'OWNERSHIP -- OTTAWA COUNTY.

MC1253'TO REACH FROM THE JUNCTION OF STATE HIGHWAYS 2 AND 53 (NORTH) ABOUT MC1253'4 MILES EAST OF PROT CLINTON. GO NORTH ON STATE HIGHWAY 53 FOR 0.15 MC1253'MILE TO A CROSSROAD. TURN LEFT, WEST, AND GO FOR 0.6 MILES TO A MC1253'AIRPORT DRIVEWAY AND STATION ON THE RIGHT.

MC1253'THE STATION IS A STANDARD CGS STATION DISK STAMPED --PENINSULA 1956--  
 MC1253'SET IN THE TOP OF A SQUARE 30 CM CONCRETE POST FLUSH WITH THE GROUND.  
 MC1253'IT IS 215 METERS NORTH OF THE HIGHWAY CENTER LINE, 21.3 METERS EAST  
 MC1253'OF THE AIRPORT ENTRANCE DRIVEWAY, 16.8 METERS EAST-SOUTHEAST OF  
 MC1253'A UTILITY POLE, 7.6 METERS NORTHEAST OF THE NORTH POST OF A TWO  
 MC1253'LEGGED AIRPORT SIGN AND 6.3 METERS SOUTH OF THE CENTER OF GRAVEL  
 MC1253'ROUND LEADING TO PARKING AREA.  
 MC1253'DESCRIBED BY B L LAMBERT. TYPED BY JAMES MALONEY 9/10/87.  
 MC1253  
 MC1253 STATION RECOVERY (1987)  
 MC1253  
 MC1253'RECOVERED 1987  
 MC1253'RECOVERED IN GOOD CONDITION.  
 MC1253  
 MC1253 STATION RECOVERY (1988)  
 MC1253  
 MC1253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1988  
 MC1253'RECOVERED IN GOOD CONDITION.  
 MC1253  
 MC1253 STATION RECOVERY (1988)  
 MC1253  
 MC1253'RECOVERY NOTE BY OHIO DEPARTMENT OF NATURAL RESOURCES 1988  
 MC1253'THE STATION IS LOCATED 15 KM (9.30 MI) NORTHWEST OF SANDUSKY AND 3 KM  
 MC1253'(1.85 MI) EAST OF PORT CLINTON AT THE SOUTH SIDE OF THE PORT CLINTON  
 MC1253'AIRPORT, KELLER FIELD, OWNERSHIP - OTTAWA COUNTY.  
 MC1253'TO REACH FROM THE JUNCTION OF STATE ROUTES 2 AND 53 (NORTH), ABOUT 6  
 MC1253'KM (3.75 MI) EAST OF PORT CLINTON, GO NORTH ON ROUTE 53 FOR 0.2 KM  
 MC1253'(0.10 MI) TO A CROSSROAD. TURN LEFT, WEST, AND GO 1.0 KM (0.60 MI) TO  
 MC1253'THE AIRPORT DRIVEWAY AND STATION ON THE RIGHT AT A GRAVEL PARKING  
 MC1253'AREA.  
 MC1253'THE STATION IS SET FLUSH IN A LAWN, 21.5 M (70.5 FT) NORTH OF THE ROAD  
 MC1253'CENTERLINE, 21.3 M (69.9 FT) EAST OF THE DRIVEWAY, 16.8 M (55.1 FT)  
 MC1253'EAST-SOUTHEAST OF A UTILITY POLE, 7.6 M (24.9 FT) NORTHEAST OF THE  
 MC1253'NORTH POST OF A TWO LEGGED AIRPORT SIGN AND 6.3 M (20.7 FT) SOUTH OF  
 MC1253'THE CENTER OF THE GRAVEL ROAD LEADING TO THE PARKING AREA.  
 MC1253  
 MC1253 STATION RECOVERY (1990)  
 MC1253  
 MC1253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1990  
 MC1253'THE STATION IS LOCATED 14.48 KM (9.00 MI) NORTHWEST OF SANDUSKY, 3.22  
 MC1253'KM (2.00 MI) EAST OF PORT CLINTON AND IN FRONT OF THE  
 MC1253'ERIE-OTTAWA-SANDUSKY REGIONAL AIRPORT NORTHEAST OF THE NORTH METAL  
 MC1253'LEG OF THE AIRPORT SIGN. OWNERSHIP--OTTAWA COUNTY, COUNTY  
 MC1253'COURTHOUSE, PORT CLINTON, OH 44871, PHONE (419)-734-6755.  
 MC1253'TO REACH THE STATION FROM THE JUNCTION OF THE WESTBOUND LANE OF STATE  
 MC1253'HIGHWAY 2 AND THE STATE HIGHWAY 53 NORTH EXIT (CATAWBA ISLAND  
 MC1253'PUT-IN-BAY EXIT), GO NORTH ON STATE HIGHWAY 53 FOR 0.08 KM (0.05 MI)  
 MC1253'TO A TRAFFIC LIGHT AND THE JUNCTION OF COUNTY ROAD 8, TURN LEFT, WEST,  
 MC1253'ON COUNTY ROAD 8 FOR 0.96 KM (0.60 MI) TO A SIGN (CARL KELLER FIELD  
 MC1253'ERIE-OTTAWA-SANDUSKY REGIONAL AIRPORT) AND THE STATION ON THE RIGHT,  
 MC1253'IN A GRASSY AREA NORTHEAST OF THE NORTH METAL LEG OF THE SIGN.  
 MC1253'THE STATION IS FLUSH WITH THE GROUND LOCATED 21.5 M (70.5 FT) NORTH OF  
 MC1253'THE CENTER OF COUNTY ROAD 8, 21.3 M (69.9 FT) EAST OF THE CENTER OF  
 MC1253'THE AIRPORT ENTRANCE DRIVE, 7.8 M (25.6 FT) NORTHEAST OF THE NORTH  
 MC1253'METAL LEG OF THE AIRPORT SIGN, 6.3 M (20.7 FT) SOUTH OF THE NORTHERN



MC1253'MOST GRAVEL DRIVE OF THE PARKING AREA AND 0.3 M (1.0 FT) SOUTH OF A  
MC1253'FIBERGLASS WITNESS POST.

MC1253

MC1253 STATION RECOVERY (1995)

MC1253

MC1253'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (AJL)

MC1253'THE STATION IS LOCATED ABOUT 14.5 KM (9.00 MI) NORTHWEST OF SANDUSKY,  
MC1253'OH. AND 3.2 KM (2.00 MI) EAST OF PORT CLINTON, OH., AT THE CARL R.  
MC1253'KELLER AIRFIELD. IN THE FIRST GRASS PLOT NORTHEAST OF THE JUNCTION OF  
MC1253'EAST STATE ROAD AND THE AIRPORT ENTRANCE ROAD. OWNERSHIP--ERIE,  
MC1253'OTTAWA, SANDUSKY COUNTY REGIONAL AIRPORT AUTHORITY, 3255 EAST STATE  
MC1253'ROAD, PORT CLINTON, OH. 43452. AIRPORT MANAGER JEFFERY KING, PHONE  
MC1253'419-734-3149. NOTE--CONTACT 24 HOURS IN ADVANCE. NOTE--CONTACT  
MC1253'AIRPORT MANAGER OR JENNIFER ON ARRIVAL. NOTE--THIS STATION WAS  
MC1253'SELECTED AS A (HARN STATION) , THE PAC STATION WAS CHANGED FROM  
MC1253'PENINSULA TO CLINTPORT OUT OF NECESSITY. TO REACH THE STATION FROM  
MC1253'THE JUNCTION OF STATE HIGHWAYS 53 NORTH AND 2 ABOUT 3.2 KM (2.00 MI)  
MC1253'EAST OF PORT CLINTON, GO NORTH, 0.24 KM (0.15 MI) ALONG HIGHWAY 53 TO  
MC1253'A CROSS ROAD. TURN LEFT, WEST, 0.96 KM (0.60 MI) ALONG EAST STATE  
MC1253'ROAD TO THE AIRPORT ENTRANCE ROAD ON THE RIGHT AND THE STATION  
MC1253'NORTHEAST OF THE JUNCTION. STATION IS 21.5 M (70.5 FT) NORTH OF EAST  
MC1253'STATE ROAD CENTER, 21.3 M (69.9 FT) EAST OF THE ENTRANCE ROAD CENTER,  
MC1253'7.8 M (25.6 FT) NORTHEAST OF THE NORTH METAL LEG OF THE AIRPORT SIGN,  
MC1253'6.3 M (20.7 FT) SOUTH OF THE MOST SOUTHERLY GRAVEL DRIVE CENTER, 0.3 M  
MC1253'(1.0 FT) SOUTH OF A WITNESS POST, AND THE MONUMENT IS 0.1 M (0.3 FT)  
MC1253'BELOW THE LEVEL OF THE ENTRANCE ROAD AND FLUSH WITH THE GROUND  
MC1253'SURFACE. BY R.G. HAYES

MC1253

MC1253 STATION RECOVERY (2005)

MC1253

MC1253'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2005 (CTS)

MC1253'RECOVERED IN GOOD CONDITION.

MC1253

MC1253 STATION RECOVERY (2015)

MC1253

MC1253'RECOVERY NOTE BY GEOCACHING 2015 (RLM)

MC1253'THE STATION MARK AND REFERENCE MARK 2 WERE RECOVERED IN GOOD  
MC1253'CONDITION. REFERENCE MARK 2 PROJECTS 12 INCHES (30 CM) ABOVE THE  
MC1253'SURFACE OF THE GROUND AND THE CONCRETE POST IS LEANING SLIGHTLY.  
MC1253'MEASUREMENTS FOR REFERENCE MARK 3 FELL UNDER A PAVED PARKING LOT. THE  
MC1253'BRIDGE IN WHICH AZIMUTH MARK 2 HAD BEEN SET HAS BEEN REPLACED. AN  
MC1253'UNSTAMPED OHIO DEPARTMENT OF TRANSPORTATION SURVEY DISK WAS RECOVERED  
MC1253'IN THE NORTH END OF THE EAST CONCRETE BANISTER OF THE REPLACEMENT  
MC1253'BRIDGE, ABOUT 2 FT (0.6 M) ABOVE THE SURFACE OF THE ROAD.

\*\*\* retrieval complete.

Elapsed Time = 00:00:03

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 31, 2016
MC1637 *****
MC1637 CBN - This is a Cooperative Base Network Control Station.
MC1637 DESIGNATION - R 344
MC1637 PID - MC1637
MC1637 STATE/COUNTY- OH/SENECA
MC1637 COUNTRY - US
MC1637 USGS QUAD - TIFFIN NORTH (1977)
MC1637
MC1637 *CURRENT SURVEY CONTROL
MC1637
MC1637* NAD 83(2011) POSITION- 41 07 38.13509(N) 083 14 15.11678(W) ADJUSTED
MC1637* NAD 83(2011) ELLIP HT- 198.446 (meters) (06/27/12) ADJUSTED
MC1637* NAD 83(2011) EPOCH - 2010.00
MC1637* NAVD 88 ORTHO HEIGHT - 233.486 (meters) 766.03 (feet) ADJUSTED
MC1637
MC1637 NAD 83(2011) X - 566,565.798 (meters) COMP
MC1637 NAD 83(2011) Y - -4,777,982.684 (meters) COMP
MC1637 NAD 83(2011) Z - 4,173,209.616 (meters) COMP
MC1637 LAPLACE CORR - 1.65 (seconds) DEFLEC12B
MC1637 GEOID HEIGHT - -35.053 (meters) GEOID12B
MC1637 DYNAMIC HEIGHT - 233.385 (meters) 765.70 (feet) COMP
MC1637 MODELED GRAVITY - 980,186.0 (mgal) NAVD 88
MC1637
MC1637 VERT ORDER - FIRST CLASS II
MC1637
MC1637 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC1637 Standards:
MC1637 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC1637 Horiz Ellip SD_N SD_E SD_h (unitless)
MC1637 -----
MC1637 NETWORK 1.60 2.53 0.73 0.55 1.29 -0.16701505
MC1637 -----
MC1637 Click here for local accuracies and other accuracy information.
MC1637
MC1637
MC1637.The horizontal coordinates were established by GPS observations
MC1637.and adjusted by the National Geodetic Survey in June 2012.
MC1637
MC1637.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC1637.frame has been affixed to the stable North American tectonic plate. See
MC1637.NA2011 for more information.
MC1637
MC1637.The horizontal coordinates are valid at the epoch date displayed above
MC1637.which is a decimal equivalence of Year/Month/Day.
MC1637
MC1637.The orthometric height was determined by differential leveling and
MC1637.adjusted by the NATIONAL GEODETIC SURVEY
MC1637.in April 1995.

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MC1637

MC1637.Significant digits in the geoid height do not necessarily reflect accuracy.  
MC1637.GEOID12B height accuracy estimate available [here](#).

MC1637

MC1637.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
MC1637

MC1637.The Laplace correction was computed from DEFLEC12B derived deflections.  
MC1637

MC1637.The ellipsoidal height was determined by GPS observations  
MC1637.and is referenced to NAD 83.

MC1637

MC1637.The dynamic height is computed by dividing the NAVD 88  
MC1637.geopotential number by the normal gravity value computed on the  
MC1637.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
MC1637.degrees latitude (g = 980.6199 gals.).

MC1637

MC1637.The modeled gravity was interpolated from observed gravity values.

MC1637

MC1637. The following values were computed from the NAD 83(2011) position.

MC1637

MC1637;		North	East	Units	Scale Factor	Converg.
MC1637;SPC OH N	-	162,454.931	538,071.550	MT	0.99993968	-0 29 04.3
MC1637;SPC OH N	-	532,987.55	1,765,323.08	sFT	0.99993968	-0 29 04.3
MC1637;UTM 17	-	4,555,297.142	312,175.978	MT	1.00003420	-1 28 19.7
MC1637!	-	Elev Factor	x	Scale Factor	=	Combined Factor
MC1637!SPC OH N	-	0.99996887	x	0.99993968	=	0.99990856
MC1637!UTM 17	-	0.99996887	x	1.00003420	=	1.00000307

MC1637

MC1637

#### SUPERSEDED SURVEY CONTROL

MC1637

MC1637	NAD 83(2007)-	41 07 38.13512(N)	083 14 15.11748(W)	AD(2002.00)	0
MC1637	ELLIP H (02/10/07)	198.471 (m)		GP(2002.00)	
MC1637	ELLIP H (03/08/05)	198.466 (m)		GP( )	4 2
MC1637	NAD 83(1995)-	41 07 38.13512(N)	083 14 15.11747(W)	AD( )	B
MC1637	ELLIP H (08/20/96)	198.486 (m)		GP( )	4 2
MC1637	NAVD 88 (08/20/96)	233.49 (m)	766.0 (f)	LEVELING	3
MC1637	NGVD 29 (01/19/93)	233.673 (m)	766.64 (f)	ADJUSTED	1 2

MC1637

MC1637.Superseded values are not recommended for survey control.

MC1637

MC1637.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC1637.[See file dsdata.txt](#) to determine how the superseded data were derived.

MC1637

MC1637\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF1217555297(NAD 83)

MC1637

MC1637\_MARKER: F = FLANGE-ENCASED ROD

MC1637\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

MC1637\_STAMPING: R 344 1992

MC1637\_MARK LOGO: NGS

MC1637\_PROJECTION: FLUSH

MC1637\_MAGNETIC: N = NO MAGNETIC MATERIAL

MC1637\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

MC1637\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC1637+SATELLITE: SATELLITE OBSERVATIONS - July 13, 2011

MC1637\_ROD/PIPE-DEPTH: 2.4 meters

MC1637

MC1637	HISTORY	- Date	Condition	Report By
MC1637	HISTORY	- 1992	MONUMENTED	NGS
MC1637	HISTORY	- 19950808	GOOD	NGS
MC1637	HISTORY	- 20070528	GOOD	JCLS
MC1637	HISTORY	- 20090925	GOOD	SATDAT
MC1637	HISTORY	- 20100412	GOOD	OHDT
MC1637	HISTORY	- 20110713	GOOD	JCLS

MC1637

MC1637

#### STATION DESCRIPTION

MC1637

MC1637'DESCRIBED BY NATIONAL GEODETIC SURVEY 1992

MC1637'4.7 KM (2.90 MI) WESTERLY ALONG THE CHESSIE SYSTEMS RAILROAD FROM THE MC1637'JUNCTION OF STATE HIGHWAY 53 IN TIFFIN, 25.8 M (84.6 FT) SOUTH OF THE MC1637'NEAR RAIL, 6.4 M (21.0 FT) EAST OF THE CENTER OF COUNTY ROAD 121, 1.1 MC1637'M (3.6 FT) NORTH OF A UTILITY POLE, 0.6 M (2.0 FT) BELOW THE LEVEL OF MC1637'THE ROAD, AND 0.5 M (1.6 FT) SOUTH OF A WITNESS POST. NOTE--ACCESS TO MC1637'THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP. THE ROD WAS DRIVEN TO MC1637'REFUSAL AND ANCHORED.

MC1637

MC1637

#### STATION RECOVERY (1995)

MC1637

MC1637'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (AJL)

MC1637'LOCATED ABOUT 14.5 KM (9.00 MI) EAST OF FOSTORIA, 4.8 KM (3.00 MI) MC1637'WEST OF TIFFIN, ON COUNTY ROAD 121 RIGHT-OF-WAY, 1.21 KM (0.75 MI) MC1637'SOUTH OF THE JUNCTION WITH COUNTY ROAD 48 AT THE HOPEWELL CHURCH, AND MC1637'JUST SOUTH OF A RAILROAD CROSSING. TO REACH FROM THE JUNCTION OF US MC1637'HIGHWAY 224 AND STATE ROUTE 18 ABOUT 3.2 KM (2.00 MI) WEST OF TIFFIN, MC1637'GO NORTHWEST 2.4 KM (1.50 MI) ON ROUTE 18, TURN SHARP RIGHT AND GO MC1637'0.40 KM (0.25 MI) EAST ON COUNTY ROAD 26, TURN LEFT AND GO NORTH ON MC1637'COUNTY ROAD 121 0.40 KM (0.25 MI) TO THE MARK ON THE RIGHT. IT IS ON MC1637'LINE WITH A ROW OF POWER POLES, 25.8 M (84.6 FT) SOUTH OF THE SOUTH MC1637'RAIL OF THE RAILROAD, 6.4 M (21.0 FT) EAST OF THE CENTER OF THE ROAD MC1637'AND 0.6 M (2.0 FT) BELOW SAME, 1.1 M (3.6 FT) NORTH OF A POWER POLE, MC1637'AND 0.5 M (1.6 FT) SOUTH OF A WITNESS POST.

MC1637

MC1637

#### STATION RECOVERY (2007)

MC1637

MC1637'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2007 (MRY)

MC1637'RECOVERED IN GOOD CONDITION.

MC1637

MC1637

#### STATION RECOVERY (2009)

MC1637

MC1637'RECOVERY NOTE BY SATELLITE DATA SYSTEMS LTD 2009 (SCB)

MC1637'RECOVERED AS DESCRIBED.

MC1637

MC1637

#### STATION RECOVERY (2010)

MC1637

MC1637'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2010 (DJB)

MC1637'MARK WAS FOUND AS DESCRIBED

MC1637

MC1637

#### STATION RECOVERY (2011)

MC1637

MC1637'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2011



MC1637'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02



# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

PROGRAM = datasheet95, VERSION = 8.8

1 National Geodetic Survey, Retrieval Date = MAY 31, 2016

MC1815 \*\*\*\*\*

MC1815 DESIGNATION - **RIALTO**

MC1815 PID - MC1815

MC1815 STATE/COUNTY- OH/LUCAS

MC1815 COUNTRY - US

MC1815 USGS QUAD - RENO BEACH (1967)

MC1815

MC1815 \*CURRENT SURVEY CONTROL

MC1815

MC1815\* NAD 83(2011) POSITION- 41 39 26.53493(N) 083 15 50.99085(W) ADJUSTED

MC1815\* NAD 83(2011) ELLIP HT- 138.807 (meters) (06/27/12) ADJUSTED

MC1815\* NAD 83(2011) EPOCH - 2010.00

MC1815\* NAVD 88 ORTHO HEIGHT - 174.3 (meters) 572. (feet) GPS OBS

MC1815

MC1815 NAVD 88 orthometric height was determined with geoid model GEOID93

MC1815 GEOID HEIGHT - -35.490 (meters) GEOID93

MC1815 GEOID HEIGHT - -35.555 (meters) GEOID12B

MC1815 NAD 83(2011) X - 559,773.498 (meters) COMP

MC1815 NAD 83(2011) Y - -4,739,540.132 (meters) COMP

MC1815 NAD 83(2011) Z - 4,217,339.151 (meters) COMP

MC1815 LAPLACE CORR - -1.24 (seconds) DEFLEC12B

MC1815

MC1815 Network accuracy estimates per FGDC Geospatial Positioning Accuracy

MC1815 Standards:

MC1815 FGDC (95% conf, cm) Standard deviation (cm) CorrNE

MC1815 Horiz Ellip SD\_N SD\_E SD\_h (unitless)

MC1815 -----

MC1815 NETWORK 1.51 2.92 0.72 0.44 1.49 -0.06478927

MC1815 -----

MC1815 Click [here](#) for local accuracies and other accuracy information.

MC1815

MC1815

MC1815.The horizontal coordinates were established by GPS observations

MC1815.and adjusted by the National Geodetic Survey in June 2012.

MC1815

MC1815.NAD 83(2011) refers to NAD 83 coordinates where the reference

MC1815.frame has been affixed to the stable North American tectonic plate. See

MC1815.[NA2011](#) for more information.

MC1815

MC1815.The horizontal coordinates are valid at the epoch date displayed above

MC1815.which is a decimal equivalence of Year/Month/Day.

MC1815

MC1815.The orthometric height was determined by GPS observations and a

MC1815.high-resolution geoid model.

MC1815

MC1815.Significant digits in the geoid height do not necessarily reflect accuracy.

MC1815.GEOID12B height accuracy estimate available [here](#).

MC1815

MC1815.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
MC1815  
MC1815.The Laplace correction was computed from DEFLEC12B derived deflections.  
MC1815  
MC1815.The ellipsoidal height was determined by GPS observations  
MC1815.and is referenced to NAD 83.  
MC1815  
MC1815. The following values were computed from the NAD 83(2011) position.  
MC1815  
MC1815;

	North	East	Units	Scale	Factor	Converg.
MC1815;SPC OH N	- 221,344.423	536,351.248	MT	0.99999206	-0 30	07.3
MC1815;SPC OH N	- 726,194.16	1,759,679.05	sFT	0.99999206	-0 30	07.3
MC1815;UTM 17	- 4,614,212.174	311,478.981	MT	1.00003737	-1 30	19.3

MC1815  
MC1815!  
- Elev Factor x Scale Factor = Combined Factor  
MC1815!SPC OH N  
- 0.99997823 x 0.99999206 = 0.99997029  
MC1815!UTM 17  
- 0.99997823 x 1.00003737 = 1.00001560  
MC1815  
MC1815  
SUPERSEDED SURVEY CONTROL  
MC1815  
MC1815 NAD 83(2007)- 41 39 26.53506(N) 083 15 50.99165(W) AD(2002.00) 0  
MC1815 ELLIP H (02/10/07) 138.821 (m) GP(2002.00)  
MC1815 ELLIP H (10/07/05) 138.846 (m) GP( ) 4 1  
MC1815 NAD 83(1995)- 41 39 26.53487(N) 083 15 50.99107(W) AD( ) 1  
MC1815 ELLIP H (04/01/98) 138.891 (m) GP( ) 4 1  
MC1815 NAD 83(1994)- 41 39 26.53486(N) 083 15 50.99106(W) AD( ) 1  
MC1815 NAD 83(1986)- 41 39 26.55038(N) 083 15 51.01075(W) AD( ) 1  
MC1815  
MC1815.Superseded values are not recommended for survey control.  
MC1815  
MC1815.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
MC1815.See file dsdata.txt to determine how the superseded data were derived.  
MC1815  
MC1815\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLG1147814212(NAD 83)  
MC1815  
MC1815\_MARKER: DD = SURVEY DISK  
MC1815\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
MC1815\_STAMPING: RIALTO 1993  
MC1815\_MARK LOGO: OH-095  
MC1815\_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT  
MC1815\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
MC1815+STABILITY: SURFACE MOTION  
MC1815\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC1815+SATELLITE: SATELLITE OBSERVATIONS - 1993  
MC1815  
MC1815 HISTORY - Date Condition Report By  
MC1815 HISTORY - 1993 MONUMENTED OH-095  
MC1815  
MC1815  
STATION DESCRIPTION  
MC1815  
MC1815'DESCRIBED BY LUCAS COUNTY OHIO 1993  
MC1815'THE STATION IS LOCATED IN LUCAS COUNTY, OHIO ABOUT 1.0 MILES NORTH OF  
MC1815'THE VILLAGE OF BONO.  
MC1815'TO REACH THE STATION FROM THE INTERSECTION OF MAIN STREET AND  
MC1815'JERUSALEM ROAD (STATE ROUTE 2) PROCEED WEST ALONG JERUSALEM ROAD 0.15



MC1815'MILES TO ITS INTERSECTION WITH HOWARD ROAD. TURN RIGHT AND PROCEED  
MC1815'NORTH ALONG HOWARD ROAD 0.6 MILES TO ITS INTERSECTION WITH VAN DYKE  
MC1815'AVENUE. TURN RIGHT AND PROCEED EAST ALONG VAN DYKE AVENUE 0.25 MILES  
MC1815'TO ITS INTERSECTION WITH RIALTO DRIVE AND THE STATION ON THE LEFT IN  
MC1815'THE NORTHWEST CORNER OF THE INTERSECTION.  
MC1815'THE STATION IS A 3.5 INCH BRASS LUCAS COUNTY ENGINEER DISK SET IN THE  
MC1815'TOP OF A 12 INCH DIAMETER CONCRETE MONUMENT 0.1 FEET BELOW AND IS  
MC1815'STAMPED --RIALTO 1993--.  
MC1815'THE STATION IS 18.0 FEET EAST FROM A POWER POLE, 39.0 FEET WEST FROM  
MC1815'THE CENTERLINE OF RIALTO ROAD, 48.0 FEET NORTHWEST FROM A RAIL ROAD  
MC1815'SPIKE AT THE INTERSECTION, AND 21.0 FEET NORTH FROM THE CENTERLINE OF  
MC1815'VAN DYKE AVENUE.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

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PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 12, 2016
MC0532 *****
MC0532 DESIGNATION - S 170
MC0532 PID - MC0532
MC0532 STATE/COUNTY- OH/WOOD
MC0532 COUNTRY - US
MC0532 USGS QUAD - GRAND RAPIDS (1977)
MC0532
MC0532 *CURRENT SURVEY CONTROL
MC0532
MC0532* NAD 83(2011) POSITION- 41 23 12.50864(N) 083 45 51.03730(W) ADJUSTED
MC0532* NAD 83(2011) ELLIP HT- 170.227 (meters) (06/27/12) ADJUSTED
MC0532* NAD 83(2011) EPOCH - 2010.00
MC0532* NAVD 88 ORTHO HEIGHT - 205.666 (meters) 674.76 (feet) ADJUSTED
MC0532
MC0532 NAD 83(2011) X - 520,557.714 (meters) COMP
MC0532 NAD 83(2011) Y - -4,764,070.922 (meters) COMP
MC0532 NAD 83(2011) Z - 4,194,861.165 (meters) COMP
MC0532 LAPLACE CORR - 1.73 (seconds) DEFLEC12B
MC0532 GEOID HEIGHT - -35.423 (meters) GEOID12B
MC0532 DYNAMIC HEIGHT - 205.579 (meters) 674.47 (feet) COMP
MC0532 MODELED GRAVITY - 980,195.9 (mgal) NAVD 88
MC0532
MC0532 VERT ORDER - FIRST CLASS I
MC0532
MC0532 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC0532 Standards:
MC0532 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC0532 Horiz Ellip SD_N SD_E SD_h (unitless)
MC0532 -----
MC0532 NETWORK 1.10 2.25 0.51 0.36 1.15 -0.01391959
MC0532 -----
MC0532 Click here for local accuracies and other accuracy information.
MC0532
MC0532
MC0532.The horizontal coordinates were established by GPS observations
MC0532.and adjusted by the National Geodetic Survey in June 2012.
MC0532
MC0532.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC0532.frame has been affixed to the stable North American tectonic plate. See
MC0532.NA2011 for more information.
MC0532
MC0532.The horizontal coordinates are valid at the epoch date displayed above
MC0532.which is a decimal equivalence of Year/Month/Day.
MC0532
MC0532.The orthometric height was determined by differential leveling and
MC0532.adjusted by the NATIONAL GEODETIC SURVEY
MC0532.in June 1991.
MC0532

```

MC0532.WARNING-Repeat measurements at this control monument indicate possible  
 MC0532.vertical movement.  
 MC0532  
 MC0532.Significant digits in the geoid height do not necessarily reflect accuracy.  
 MC0532.GEOID12B height accuracy estimate available [here](#).  
 MC0532  
 MC0532.[Photographs](#) are available for this station.  
 MC0532  
 MC0532.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 MC0532  
 MC0532.The Laplace correction was computed from DEFLEC12B derived deflections.  
 MC0532  
 MC0532.The ellipsoidal height was determined by GPS observations  
 MC0532.and is referenced to NAD 83.  
 MC0532  
 MC0532.The dynamic height is computed by dividing the NAVD 88  
 MC0532.geopotential number by the normal gravity value computed on the  
 MC0532.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 MC0532.degrees latitude (g = 980.6199 gals.).  
 MC0532  
 MC0532.The modeled gravity was interpolated from observed gravity values.  
 MC0532  
 MC0532. The following values were computed from the NAD 83(2011) position.  
 MC0532  

MC0532;		North	East	Units	Scale	Factor	Converg.
MC0532;SPC OH N	-	191,782.924	494,270.974	MT	0.99995462	-0 49 49.8	
MC0532;SPC OH N	-	629,207.81	1,621,620.69	sFT	0.99995462	-0 49 49.8	
MC0532;UTM 17	-	4,585,385.270	268,881.422	MT	1.00025742	-1 49 41.9	
MC0532!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC0532!SPC OH N	-	0.99997330	x	0.99995462	=	0.99992792	
MC0532!UTM 17	-	0.99997330	x	1.00025742	=	1.00023071	

 MC0532  
 MC0532  

SUPERSEDED SURVEY CONTROL

 MC0532  

MC0532	NAD 83(2007)-	41 23 12.50876(N)	083 45 51.03811(W)	AD(2002.00)	0
MC0532	ELLIP H (02/10/07)	170.243 (m)		GP(2002.00)	
MC0532	ELLIP H (10/07/05)	170.246 (m)		GP(	) 4 1
MC0532	NAD 83(1995)-	41 23 12.50867(N)	083 45 51.03821(W)	AD(	) 1
MC0532	ELLIP H (04/01/98)	170.307 (m)		GP(	) 4 1
MC0532	NAD 83(1994)-	41 23 12.50860(N)	083 45 51.03810(W)	AD(	) 1
MC0532	NAD 83(1986)-	41 23 12.51917(N)	083 45 51.05154(W)	AD(	) 1
MC0532	NAVD 88 (09/14/94)	205.67 (m)	674.8	(f) LEVELING	3
MC0532	NGVD 29 (??/??/92)	205.857 (m)	675.38	(f) ADJ UNCH	1 1

 MC0532  
 MC0532.Superseded values are not recommended for survey control.  
 MC0532  
 MC0532.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 MC0532.[See file dsdata.txt](#) to determine how the superseded data were derived.  
 MC0532  
 MC0532\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKF6888185385(NAD 83)  
 MC0532  
 MC0532\_MARKER: DB = BENCH MARK DISK  
 MC0532\_SETTING: 38 = SET IN THE ABUTMENT OR PIER OF A LARGE BRIDGE  
 MC0532\_SP\_SET: SET IN RAILBRIDGE ABUTMENT



MC0532\_STAMPING: S 170 1954

MC0532\_MARK LOGO: CGS

MC0532\_MAGNETIC: O = OTHER; SEE DESCRIPTION

MC0532\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

MC0532\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC0532+SATELLITE: SATELLITE OBSERVATIONS - May 30, 2014

MC0532

MC0532	HISTORY	- Date	Condition	Report By
MC0532	HISTORY	- 1954	MONUMENTED	CGS
MC0532	HISTORY	- 1968	GOOD	CGS
MC0532	HISTORY	- 1983	GOOD	LOCSUR
MC0532	HISTORY	- 19930924	GOOD	GEOMET
MC0532	HISTORY	- 20100401	GOOD	OHDT
MC0532	HISTORY	- 20140530	GOOD	WOOLPT

MC0532

MC0532 STATION DESCRIPTION

MC0532

MC0532'DESCRIBED BY COAST AND GEODETIC SURVEY 1968

MC0532'2.5 MI SW FROM TONTOGANY.

MC0532'ABOUT 2.5 MILES SOUTHWEST ALONG THE BALTIMORE AND OHIO RAILROAD

MC0532'FROM THE STATION AT TONTOGANY, 37 FEET SOUTH OF THE CENTER OF

MC0532'THE CROSSING OF POE ROAD, NEAR MILEPOLE 179-06, SET ON THE TOP

MC0532'OF THE SOUTHEAST END OF THE SOUTHWEST CONCRETE ABUTMENT OF A

MC0532'20-FOOT BRIDGE OVER A DRAINAGE DITCH, 9.8 FEET SOUTHEAST OF THE

MC0532'SOUTHEAST RAIL AND 1 1/2 FEET BELOW THE LEVEL OF THE TRACK.

MC0532'SEC 19, T 5N, R 10E.

MC0532

MC0532 STATION RECOVERY (1983)

MC0532

MC0532'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1983

MC0532'RECOVERED IN GOOD CONDITION.

MC0532

MC0532 STATION RECOVERY (1993)

MC0532

MC0532'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1993

MC0532'RECOVERED IN GOOD CONDITION.

MC0532

MC0532 STATION RECOVERY (2010)

MC0532

MC0532'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2010 (DJB)

MC0532'FOUND AS DESCRIBED

MC0532

MC0532 STATION RECOVERY (2014)

MC0532

MC0532'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2014 (DMH)

MC0532'THE STATION IS LOCATED ABOUT 5.9 MI (9.5 KM) WEST OF BOWLING GREEN,

MC0532'5.5 MI (8.8 KM) EAST-SOUTHEAST OF GRAND RAPIDS, 3.4 MI (5.5 KM)

MC0532'NORTH-NORTHEAST OF WESTON AND 2.5 MI (4.0 KM) SOUTHWEST OF TONTOGANY,

MC0532'NEAR THE RIGHT OF WAY OF THE BALTIMORE AND OHIO RAILROAD.

MC0532'

MC0532'TO REACH FROM THE INTERSECTION OF BROAD STREET AND MAIN STREET IN

MC0532'TONTOGANY, GO WEST ON MAIN STREET FOR 0.1 MI (0.2 KM) TO A

MC0532'T-INTERSECTION. TURN LEFT AND GO SOUTH ON TONTOGANY CREEK ROAD FOR

MC0532'0.2 MI (0.3 KM) TO A STOP SIGN AT A CROSS ROAD. TURN RIGHT AND GO

MC0532'WEST ON KELLOGG ROAD FOR 1.3 MI (2.1 KM) TO A CROSS ROAD. TURN LEFT



MC0532'AND GO SOUTH ON RANGE LINE ROAD FOR 2.0 MI (3.2 KM) TO A STOP SIGN AT  
MC0532'A CROSS ROAD. TURN LEFT AND GO EAST ON POE ROAD FOR 0.15 MI (0.2 KM)  
MC0532'TO THE BALTIMORE AND OHIO RAILROAD AND THE STATION ON THE RIGHT.  
MC0532'

MC0532'THE DISK IS SET IN CRUMBLING CONCRETE NEAR THE EAST END OF THE SOUTH  
MC0532'ABUTMENT OF A RAILROAD BRIDGE OVER A SMALL DRAIN. IT IS 48.6 FT (14.8  
MC0532'M) SOUTHEAST OF A UTILITY POLE WITH A METER BOX, 39 FT (11.9 M)  
MC0532'SOUTH-SOUTHEAST OF THE INTERSECTION OF POE ROAD AND THE RAILROAD, 27.2  
MC0532'FT (8.3 M) SOUTHWEST OF A RAILROAD SIGNAL POST AND 9.8 FT (3.0 M)  
MC0532'SOUTHEAST AND 2 FT (0.6 M) LOWER THAN THE SOUTHEAST RAIL.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 31, 2016
DL6925 *****
DL6925 PACS - This is a Primary Airport Control Station.
DL6925 DESIGNATION - S24 A
DL6925 PID - DL6925
DL6925 STATE/COUNTY- OH/SANDUSKY
DL6925 COUNTRY - US
DL6925 USGS QUAD - FREMONT EAST (1980)
DL6925
DL6925 *CURRENT SURVEY CONTROL
DL6925
DL6925* NAD 83(2011) POSITION- 41 17 44.60710(N) 083 01 58.29927(W) ADJUSTED
DL6925* NAD 83(2011) ELLIP HT- 165.042 (meters) (06/27/12) ADJUSTED
DL6925* NAD 83(2011) EPOCH - 2010.00
DL6925* NAVD 88 ORTHO HEIGHT - 200.32 (meters) 657.2 (feet) GPS OBS
DL6925
DL6925 NAVD 88 orthometric height was determined with geoid model GEOID09
DL6925 GEOID HEIGHT - -35.249 (meters) GEOID09
DL6925 GEOID HEIGHT - -35.273 (meters) GEOID12B
DL6925 NAD 83(2011) X - 582,131.728 (meters) COMP
DL6925 NAD 83(2011) Y - -4,763,667.595 (meters) COMP
DL6925 NAD 83(2011) Z - 4,187,262.707 (meters) COMP
DL6925 LAPLACE CORR - -1.24 (seconds) DEFLEC12B
DL6925
DL6925 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
DL6925 Standards:
DL6925 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
DL6925 Horiz Ellip SD_N SD_E SD_h (unitless)
DL6925 -----
DL6925 NETWORK 2.85 2.82 1.29 1.01 1.44 -0.03964561
DL6925 -----
DL6925 Click here for local accuracies and other accuracy information.
DL6925
DL6925
DL6925.This mark is at Sandusky County Regional Airport (S24)
DL6925
DL6925.The horizontal coordinates were established by GPS observations
DL6925.and adjusted by the National Geodetic Survey in June 2012.
DL6925
DL6925.NAD 83(2011) refers to NAD 83 coordinates where the reference
DL6925.frame has been affixed to the stable North American tectonic plate. See
DL6925.NA2011 for more information.
DL6925
DL6925.The horizontal coordinates are valid at the epoch date displayed above
DL6925.which is a decimal equivalence of Year/Month/Day.
DL6925
DL6925.The orthometric height was determined by GPS observations and a
DL6925.high-resolution geoid model.
DL6925

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DL6925.GPS derived orthometric heights for airport stations designated as DL6925.PACS or SACS are published to 2 decimal places. This maintains DL6925.centimeter relative accuracy between the PACS and SACS. It does DL6925.not indicate centimeter accuracy relative to other marks which are DL6925.part of the NAVD 88 network.

DL6925

DL6925.Significant digits in the geoid height do not necessarily reflect accuracy. DL6925.GEOID12B height accuracy estimate available here.

DL6925

DL6925.The X, Y, and Z were computed from the position and the ellipsoidal ht. DL6925

DL6925.The Laplace correction was computed from DEFLEC12B derived deflections. DL6925

DL6925.The ellipsoidal height was determined by GPS observations DL6925.and is referenced to NAD 83.

DL6925

DL6925. The following values were computed from the NAD 83(2011) position.

DL6925

DL6925;		North	East	Units	Scale Factor	Converg.
DL6925:SPC OH N	-	181,037.667	555,371.270	MT	0.99994704	-0 21 00.2
DL6925:SPC OH N	-	593,954.41	1,822,080.57	sFT	0.99994704	-0 21 00.2
DL6925:UTM 17	-	4,573,579.216	329,795.038	MT	0.99995654	-1 20 30.8

DL6925

DL6925!	-	Elev Factor	x	Scale Factor	=	Combined Factor
DL6925!SPC OH N	-	0.99997411	x	0.99994704	=	0.99992115
DL6925!UTM 17	-	0.99997411	x	0.99995654	=	0.99993065

DL6925

DL6925:		Primary Azimuth Mark	Grid Az
DL6925:SPC OH N	-	S24 C	029 16 17.9
DL6925:UTM 17	-	S24 C	030 15 48.5

DL6925

DL6925	PID	Reference Object	Distance	Geod. Az
DL6925				ddmmss.s
DL6925	DL7137	S24 C	APPROX. 0.5 KM	0285517.7

DL6925

DL6925

#### SUPERSEDED SURVEY CONTROL

DL6925

DL6925	NAD 83(2007)-	41 17 44.60725(N)	083 01 58.29991(W)	AD(2002.00) B
DL6925	ELLIP H (03/29/10)	165.048 (m)		GP(2002.00) 5 2

DL6925

DL6925.Superseded values are not recommended for survey control.

DL6925

DL6925.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
DL6925.See file dsdata.txt to determine how the superseded data were derived.  
DL6925

DL6925\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF2979573579(NAD 83)

DL6925

DL6925\_MARKER: F = FLANGE-ENCASED ROD

DL6925\_SETTING: 60 = ALUMINUM ALLOY ROD IN SLEEVE (10 FT.+)

DL6925\_STAMPING: S24 A 2009

DL6925\_MARK LOGO: NONE

DL6925\_PROJECTION: RECESSED 9 CENTIMETERS

DL6925\_MAGNETIC: N = NO MAGNETIC MATERIAL



DL6925\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
DL6925\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
DL6925+SATELLITE: SATELLITE OBSERVATIONS - December 09, 2014

DL6925\_ROD/PIPE-DEPTH: 3.0 meters

DL6925\_SLEEVE-DEPTH : 0.9 meters

DL6925

DL6925	HISTORY	- Date	Condition	Report By
DL6925	HISTORY	- 20090925	MONUMENTED	SATDAT
DL6925	HISTORY	- 20140517	GOOD	FAMM
DL6925	HISTORY	- 20141209	GOOD	JCLS

DL6925

DL6925 STATION DESCRIPTION

DL6925

DL6925'DESCRIBED BY SATELLITE DATA SYSTEMS LTD 2009

DL6925'THE STATION IS LOCATED ABOUT 9.6 KM (6.0 MI) SOUTHEAST OF FREMONT,  
DL6925'OH., 5 KM (3.1 MI) SOUTHWEST OF CLYDE, OH., 4.8 KM (3.0 MI) NORTHEAST  
DL6925'OF GREEN SPRINGS, OH., AT THE SANDUSKY COUNTY REGIONAL AIRPORT.

DL6925'OWNERSHIP--DAVID WADSWORTH, AIRPORT MANAGER, 1500 CR 220, CLYDE, OH  
DL6925'43410, (419) 547-0131. PERMISSION TO ACCESS THIS STATION MUST BE  
DL6925'GRANTED BY THE AIRPORT MANAGER OR MANAGING BOARD.

DL6925'

DL6925'TO REACH THE STATION FROM THE INTERSECTION OF US 20 AND CR 220 (FLORA  
DL6925'ROAD) GO SOUTH, 1.65 MI (2.7 KM) ALONG CR 220 (FLORA ROAD) TO THE  
DL6925'AIRPORT ENTRANCE ON THE RIGHT. THEN 0.16 MI (0.3 KM) SOUTH EAST ALONG  
DL6925'THE TAXI AND ACROSS THE RUNWAY TO A GRASS FIELD, THEN 568 FT (173.1 M)  
DL6925'SOUTH EAST TO THE NORTH SIDE OF THE CUL-DE-SAC OF CREEK 220 ROAD TO  
DL6925'THE STATION.

DL6925'

DL6925'THE STATION IS THE TOP CENTER OF AN ALUMINUM ROD DRIVEN TO REFUSAL.  
DL6925'THE ROD IS RECESSED 9 CM (4 INCHES) BELOW GROUND LEVEL IN A GREASE  
DL6925'FINNED SLEEVE, AND ENCASED IN A 6 INCH (15 CM) LOGO CAP SURROUNDED BY  
DL6925'CONCRETE. THE LOGO CAP AND CONCRETE ARE FLUSH WITH THE GROUND. THE  
DL6925'STATION IS 2 FT (0.6 M) NORTH OF A GUARD RAIL ON THE NORTH SIDE OF THE  
DL6925'CUL-DE-SAC. THIS STATION IS DESIGNATED AS A PRIMARY AIRPORT CONTROL  
DL6925'STATION.

DL6925

DL6925 STATION RECOVERY (2014)

DL6925

DL6925'RECOVERY NOTE BY FUGRO AERIAL AND MOBILE MAPPING INC 2014 (MRY)  
DL6925'RECOVERED IN GOOD CONDITION.

DL6925

DL6925 STATION RECOVERY (2014)

DL6925

DL6925'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2014 (MRY)  
DL6925'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey, Retrieval Date = MAY 31, 2016
MC0981 *****
MC0981 DESIGNATION - U 317
MC0981 PID - MC0981
MC0981 STATE/COUNTY- OH/OTTAWA
MC0981 COUNTRY - US
MC0981 USGS QUAD - GYPSUM (1980)
MC0981
MC0981 *CURRENT SURVEY CONTROL
MC0981
MC0981* NAD 83(1986) POSITION- 41 31 53.0 (N) 082 47 14.4 (W) HD_HELD2
MC0981* NAVD 88 ORTHO HEIGHT - 183.318 (meters) 601.44 (feet) ADJUSTED
MC0981
MC0981 GEOID HEIGHT - -35.518 (meters) GEOID12B
MC0981 DYNAMIC HEIGHT - 183.244 (meters) 601.19 (feet) COMP
MC0981 MODELED GRAVITY - 980,213.7 (mgal) NAVD 88
MC0981
MC0981 VERT ORDER - FIRST CLASS II
MC0981
MC0981.The horizontal coordinates were established by autonomous hand held GPS
MC0981.observations and have an estimated accuracy of +/- 10 meters.
MC0981.
MC0981.The orthometric height was determined by differential leveling and
MC0981.adjusted by the NATIONAL GEODETIC SURVEY
MC0981.in June 1991.
MC0981
MC0981.Significant digits in the geoid height do not necessarily reflect accuracy.
MC0981.GEOID12B height accuracy estimate available here.
MC0981
MC0981.Photographs are available for this station.
MC0981
MC0981.The dynamic height is computed by dividing the NAVD 88
MC0981.geopotential number by the normal gravity value computed on the
MC0981.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
MC0981.degrees latitude (g = 980.6199 gals.).
MC0981
MC0981.The modeled gravity was interpolated from observed gravity values.
MC0981
MC0981; North East Units Estimated Accuracy
MC0981;SPC OH N - 207,113. 576,021. MT (+/- 10 meters HH2 GPS)
MC0981
MC0981 SUPERSEDED SURVEY CONTROL
MC0981
MC0981 NGVD 29 (06/03/92) 183.530 (m) 602.13 (f) ADJUSTED 1 2
MC0981
MC0981.Superseded values are not recommended for survey control.
MC0981
MC0981.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
MC0981.See file dsdata.txt to determine how the superseded data were derived.

```



MC0981  
MC0981\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF5089399291(NAD 83)  
MC0981  
MC0981\_MARKER: I = METAL ROD  
MC0981\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)   
MC0981\_STAMPING: U 317 1980  
MC0981\_PROJECTION: FLUSH  
MC0981\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
MC0981\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
MC0981+SATELLITE: SATELLITE OBSERVATIONS - September 18, 2005  
MC0981\_ROD/PIPE-DEPTH: 4.0 meters

MC0981  
MC0981 HISTORY - Date Condition Report By  
MC0981 HISTORY - 1980 MONUMENTED NGS  
MC0981 HISTORY - 1987 GOOD USPSQD  
MC0981 HISTORY - 20040530 GOOD USPSQD  
MC0981 HISTORY - 20050918 GOOD USPSQD

MC0981  
MC0981 STATION DESCRIPTION  
MC0981  
MC0981'DESCRIBED BY NATIONAL GEODETIC SURVEY 1980  
MC0981'3.1 KM SW FROM LAKESIDE.  
MC0981'3.1 KILOMETERS (1.95 MILES) SOUTHWEST ALONG STATE HIGHWAY 163 FROM THE  
MC0981'CROSSING OF THE MARBLEHEAD RAILROAD IN LAKESIDE, 0.08 KILOMETER (0.05  
MC0981'MILE) WEST OF THE JUNCTION OF CHANNEL GROVE ROAD, SET AT THE NORTHWEST  
MC0981'CORNER OF A 5-FOOT CHAIN LINK FENCE AROUND A CEMETARY, 8.4 METERS  
MC0981'(27.6 FEET) SOUTH OF THE CENTER LINE OF THE HIGHWAY, 20.0 METERS  
MC0981'(65.6 FEET) WEST OF THE MOST WESTERLY OF TWO DRIVES LEADING TO THE  
MC0981'CEMETARY, 0.6 METER (2.0 FEET) SOUTHWEST OF THE FENCE CORNER, 0.6  
MC0981'METER(2.0 FEET) NORTHEAST OF POWER POLE NUMBER 32 ER 4D 26.  
MC0981'THE MARK IS 0.3 METERS S FROM A WITNESS POST.  
MC0981'THE MARK IS 0.6 M BELOW HIGHWAY.

MC0981  
MC0981 STATION RECOVERY (1987)  
MC0981  
MC0981'RECOVERY NOTE BY US POWER SQUADRON 1987 (MS)  
MC0981'RECOVERED IN GOOD CONDITION.

MC0981  
MC0981 STATION RECOVERY (2004)  
MC0981  
MC0981'RECOVERY NOTE BY US POWER SQUADRON 2004 (RLR)  
MC0981'WITNESS POST OKAY.

MC0981  
MC0981 STATION RECOVERY (2005)  
MC0981  
MC0981'RECOVERY NOTE BY US POWER SQUADRON 2005 (RLR)  
MC0981'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:02

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,   Retrieval Date = MAY 12, 2016
MC1644 *****
MC1644 CBN          -   This is a Cooperative Base Network Control Station.
MC1644 PACS         -   This is a Primary Airport Control Station.
MC1644 DESIGNATION -   W 350
MC1644 PID          -   MC1644
MC1644 STATE/COUNTY-   OH/HANCOCK
MC1644 COUNTRY      -   US
MC1644 USGS QUAD    -   FINDLAY (1979)
MC1644
MC1644                                *CURRENT SURVEY CONTROL
MC1644
MC1644* NAD 83(2011) POSITION- 41 00 45.54437(N) 083 41 03.08608(W) ADJUSTED
MC1644* NAD 83(2011) ELLIP HT- 205.366 (meters) (06/27/12) ADJUSTED
MC1644* NAD 83(2011) EPOCH   - 2010.00
MC1644* NAVD 88 ORTHO HEIGHT - 240.808 (meters) 790.05 (feet) ADJUSTED
MC1644
MC1644 NAD 83(2011) X  - 530,221.945 (meters) COMP
MC1644 NAD 83(2011) Y  - -4,790,570.866 (meters) COMP
MC1644 NAD 83(2011) Z  - 4,163,618.208 (meters) COMP
MC1644 LAPLACE CORR   - 1.30 (seconds) DEFLEC12B
MC1644 GEOID HEIGHT   - -35.445 (meters) GEOID12B
MC1644 DYNAMIC HEIGHT - 240.693 (meters) 789.67 (feet) COMP
MC1644 MODELED GRAVITY - 980,139.2 (mgal) NAVD 88
MC1644
MC1644 VERT ORDER      - FIRST CLASS II
MC1644
MC1644 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC1644 Standards:
MC1644      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
MC1644      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
MC1644 -----
MC1644 NETWORK      0.97   1.96              0.45   0.32   1.00      -0.06669983
MC1644 -----
MC1644 Click here for local accuracies and other accuracy information.
MC1644
MC1644
MC1644.This mark is at Findlay Airport (FDY)
MC1644
MC1644.The horizontal coordinates were established by GPS observations
MC1644.and adjusted by the National Geodetic Survey in June 2012.
MC1644
MC1644.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC1644.frame has been affixed to the stable North American tectonic plate. See
MC1644.NA2011 for more information.
MC1644
MC1644.The horizontal coordinates are valid at the epoch date displayed above
MC1644.which is a decimal equivalence of Year/Month/Day.
MC1644

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MC1644.The orthometric height was determined by differential leveling and  
MC1644.adjusted by the NATIONAL GEODETIC SURVEY  
MC1644.in January 1994.

MC1644

MC1644.Significant digits in the geoid height do not necessarily reflect accuracy.  
MC1644.GEOID12B height accuracy estimate available here.

MC1644

MC1644.Photographs are available for this station.

MC1644

MC1644.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MC1644

MC1644.The Laplace correction was computed from DEFLEC12B derived deflections.

MC1644

MC1644.The ellipsoidal height was determined by GPS observations

MC1644.and is referenced to NAD 83.

MC1644

MC1644.The dynamic height is computed by dividing the NAVD 88

MC1644.geopotential number by the normal gravity value computed on the

MC1644.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MC1644.degrees latitude (g = 980.6199 gals.).

MC1644

MC1644.The modeled gravity was interpolated from observed gravity values.

MC1644

MC1644. The following values were computed from the NAD 83(2011) position.

MC1644

MC1644;		North	East	Units	Scale	Factor	Converg.
MC1644;SPC OH N	-	150,142.187	500,396.037	MT	0.99993960	-0 46 40.6	
MC1644;SPC OH N	-	492,591.49	1,641,716.00	sFT	0.99993960	-0 46 40.6	
MC1644;UTM 17	-	4,543,632.364	274,287.022	MT	1.00022708	-1 45 43.8	
MC1644!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC1644!SPC OH N	-	0.99996779	x	0.99993960	=	0.99990739	
MC1644!UTM 17	-	0.99996779	x	1.00022708	=	1.00019486	

MC1644

MC1644	PID	Reference Object	Distance	Geod. Az
MC1644				ddmmss.s
MC1644	AA7366	WILSON	187.830 METERS	32752

MC1644

MC1644 SUPERSEDED SURVEY CONTROL

MC1644

MC1644	NAD 83(2007)-	41 00 45.54442(N)	083 41 03.08684(W)	AD(2002.00)	0
MC1644	ELLIP H (02/10/07)	205.382 (m)		GP(2002.00)	
MC1644	ELLIP H (03/08/05)	205.389 (m)		GP(	) 4 2
MC1644	NAD 83(1995)-	41 00 45.54442(N)	083 41 03.08656(W)	AD(	) B
MC1644	ELLIP H (08/20/96)	205.425 (m)		GP(	) 4 2
MC1644	NAD 83(1986)-	41 00 45.55417(N)	083 41 03.09777(W)	AD(	) 1
MC1644	NAVD 88 (07/20/95)	240.81 (m)	790.1 (f)	LEVELING	3

MC1644

MC1644.Superseded values are not recommended for survey control.

MC1644

MC1644.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC1644.See file dsdata.txt to determine how the superseded data were derived.

MC1644



MC1644\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TKF7428743632(NAD 83)

MC1644

MC1644\_MARKER: F = FLANGE-ENCASED ROD

MC1644\_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)

MC1644\_STAMPING: W 350 1993

MC1644\_MARK LOGO: NGS

MC1644\_PROJECTION: FLUSH

MC1644\_MAGNETIC: N = NO MAGNETIC MATERIAL

MC1644\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL

MC1644\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC1644+SATELLITE: SATELLITE OBSERVATIONS - June 03, 2014

MC1644\_ROD/PIPE-DEPTH: 3.1 meters

MC1644\_SLEEVE-DEPTH : 0.90 meters

MC1644

MC1644	HISTORY	- Date	Condition	Report By
MC1644	HISTORY	- 1993	MONUMENTED	NGS
MC1644	HISTORY	- 19940824	GOOD	OH-063
MC1644	HISTORY	- 19951109	GOOD	NGS
MC1644	HISTORY	- 20110614	GOOD	JCLS
MC1644	HISTORY	- 20140603	GOOD	WOOLPT

MC1644

MC1644 STATION DESCRIPTION

MC1644

MC1644'DESCRIBED BY NATIONAL GEODETIC SURVEY 1993

MC1644'3.8 KM (2.35 MI) SOUTHERLY ALONG INTERSTATE HIGHWAY 75 FROM THE  
MC1644'JUNCTION OF STATE HIGHWAY 224 IN FINDLAY (EXIT 159), THENCE 1.2 KM  
MC1644'(0.75 MI) EASTERLY ALONG AN EXIT RAMP (EXIT 156), THENCE 1.9 KM (1.20  
MC1644'MI) SOUTHERLY ALONG LIMA AVENUE (COUNTY ROAD 313), 22.2 M (72.8 FT)  
MC1644'NORTHWEST OF THE CENTERLINE OF THE AVENUE, 16.9 M (55.4 FT) EAST OF  
MC1644'THE SOUTHEAST CORNER OF A COUNTY MAINTENANCE BUILDING, 10.5 M (34.4  
MC1644'FT) WEST OF THE CENTERLINE OF TOWNSHIP ROAD 67, 0.7 M (2.3 FT) SOUTH  
MC1644'OF THE MOST SOUTHERLY OF 2 LEGS OF A SIGN (HANCOCK COUNTY ENGINEER),  
MC1644'AND 0.6 M (2.0 FT) BELOW THE LEVEL OF THE AVENUE. NOTE--ACCESS TO  
MC1644'THE DATUM POINT IS THROUGH A 5-INCH LOGO CAP. THE SLEEVE DEPTH DOES  
MC1644'NOT MEET THE SPECIFICATIONS FOR A CLASS A MARK.

MC1644

MC1644 STATION RECOVERY (1994)

MC1644

MC1644'RECOVERY NOTE BY HANCOCK COUNTY OHIO 1994 (TM)

MC1644'RECOVERED AS DESCRIBED.

MC1644

MC1644 STATION RECOVERY (1995)

MC1644

MC1644'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (AJL)

MC1644'NOTE--THIS IS THE PAC STATION. NOTE--NOTIFY HANCOCK COUNTY ENGINEER  
MC1644'IF LEAVING AN INSTRUMENT DURING BUSINESS HOURS. IF OBSERVATIONS ARE  
MC1644'AFTER BUSINESS HOURS IT WILL REQUIRE SOMEONE TO REMAIN WITH THE  
MC1644'INSTRUMENT. THE STATION IS LOCATED ABOUT 2 KM (1.25 MI)  
MC1644'SOUTH-SOUTHWEST OF FINDLAY, IN THE NORTHWEST QUADRANT OF THE JUNCTION  
MC1644'OF LIMA AVENUE AND COUNTY ROAD 67, ACROSS THE INTERSECTION FROM THE  
MC1644'NORTHWEST CORNER OF THE FINDLAY AIRFIELD, AND IN THE SOUTHEAST CORNER  
MC1644'OF THE HANCOCK COUNTY ENGINEERS OFFICE YARD. TO REACH FROM THE  
MC1644'UNDERPASS AT THE JUNCTION OF INTERSTATE HIGHWAY 75, U.S. HIGHWAY 68  
MC1644'AND STATE HIGHWAY 15 (EXIT 156) ON THE SOUTH SIDE OF FINDLAY, GO  
MC1644'SOUTHEAST ON HIGHWAYS 68 AND 15 FOR 0.56 KM (0.35 MI) TO THE LIMA



MC1644'AVENUE EXIT ON THE RIGHT. TURN RIGHT, SOUTHWEST, ON THE EXIT ROAD FOR MC1644'0.24 KM (0.15 MI) TO THE JUNCTION OF LIMA AVENUE. TURN LEFT, MC1644'WEST-SOUTHWEST, ON LIMA AVENUE FOR 1.9 KM (1.20 MI) TO THE JUNCTION OF MC1644'COUNTY ROAD 67 AND THE STATION ON THE RIGHT. THE STATION IS A PUNCH MC1644'HOLE TOP CENTER OF A STAINLESS STEEL ROD IN A 25 CM GREASE FILLED MC1644'SLEEVE 90 CM LONG ENCASED IN A 12.7 CM PVC PIPE WITH A LOGO CAP MC1644'SURROUNDED BY CONCRETE SET FLUSH WITH THE GROUND. IT IS 15.9 M (52.2 MC1644'FT) NORTHWEST OF, AND 0.6 M (2.0 FT) LOWER THAN THE CENTER OF LIMA MC1644'AVENUE, 22.2 M (72.8 FT) EAST OF THE SOUTHEAST CORNER OF A COUNTY MC1644'MAINTENANCE BUILDING, 11.3 M (37.1 FT) WEST OF THE CENTER OF COUNTY MC1644'ROAD 67, AND 0.7 M (2.3 FT) SOUTH OF THE SOUTH ONE OF TWO LEGS OF A MC1644'SIGN--HANCOCK COUNTY ENGINEER. NOTE--THE SLEEVE DEPTH DOES NOT MEET MC1644'CLASS A REQUIREMENTS. DESCRIBED BY D.G. AUG

MC1644

MC1644 STATION RECOVERY (2011)

MC1644

MC1644'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2011

MC1644'RECOVERED IN GOOD CONDITION.

MC1644

MC1644 STATION RECOVERY (2014)

MC1644

MC1644'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2014 (DMH)

MC1644'HANCOCK COUNTY ENGINEER NO LONGER REQUIRES EQUIPMENT TO BE ATTENDED

MC1644'WHEN OCCUPYING STATION DURING NON-BUSINESS HOURS. THE MARK IS 53.5 FT

MC1644'(16.3 M) NORTHWEST OF THE CENTERLINE OF LIMA AVENUE, 36.8 FT (11.2 M)

MC1644'WEST OF THE CENTERLINE OF CARLIN STREET, 22.3 FT (6.8 M) EAST OF THE

MC1644'SOUTHEAST CORNER OF AN ASPHALT PARKING LOT AND 3.2 FT (1.0 M)

MC1644'SOUTHEAST OF THE SOUTHEAST WOODEN POST OF THE HANCOCK COUNTY ENGINEER

MC1644'SIGN.

\*\*\* retrieval complete.

Elapsed Time = 00:00:02



# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 31, 2016
MC1011 *****
MC1011 DESIGNATION -   Y 316
MC1011 PID          -   MC1011
MC1011 STATE/COUNTY- OH/OTTAWA
MC1011 COUNTRY      -   US
MC1011 USGS QUAD    -   OAK HARBOR (1980)
MC1011
MC1011                                *CURRENT SURVEY CONTROL
MC1011
MC1011* NAD 83(2011) POSITION- 41 31 18.22728(N) 083 07 32.35623(W) ADJUSTED
MC1011* NAD 83(2011) ELLIP HT- 142.489 (meters) (06/27/12) ADJUSTED
MC1011* NAD 83(2011) EPOCH   - 2010.00
MC1011* NAVD 88 ORTHO HEIGHT - 178.042 (meters) 584.13 (feet) ADJUSTED
MC1011
MC1011 NAD 83(2011) X   - 572,426.726 (meters) COMP
MC1011 NAD 83(2011) Y   - -4,748,104.124 (meters) COMP
MC1011 NAD 83(2011) Z   - 4,206,073.937 (meters) COMP
MC1011 LAPLACE CORR    - -0.33 (seconds) DEFLEC12B
MC1011 GEOID HEIGHT    - -35.569 (meters) GEOID12B
MC1011 DYNAMIC HEIGHT  - 177.969 (meters) 583.89 (feet) COMP
MC1011 MODELED GRAVITY - 980,212.1 (mgal) NAVD 88
MC1011
MC1011 VERT ORDER      - FIRST CLASS II
MC1011
MC1011 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC1011 Standards:
MC1011      FGDC (95% conf, cm)      Standard deviation (cm)      CorrNE
MC1011      Horiz Ellip              SD_N   SD_E   SD_h      (unitless)
MC1011 -----
MC1011 NETWORK      1.26   2.53              0.58   0.43   1.29      0.01692057
MC1011 -----
MC1011 Click here for local accuracies and other accuracy information.
MC1011
MC1011
MC1011.The horizontal coordinates were established by GPS observations
MC1011.and adjusted by the National Geodetic Survey in June 2012.
MC1011
MC1011.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC1011.frame has been affixed to the stable North American tectonic plate. See
MC1011.NA2011 for more information.
MC1011
MC1011.The horizontal coordinates are valid at the epoch date displayed above
MC1011.which is a decimal equivalence of Year/Month/Day.
MC1011
MC1011.The orthometric height was determined by differential leveling and
MC1011.adjusted by the NATIONAL GEODETIC SURVEY
MC1011.in June 1991.
MC1011

```

MC1011.Significant digits in the geoid height do not necessarily reflect accuracy.  
MC1011.GEOID12B height accuracy estimate available here.

MC1011

MC1011.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MC1011

MC1011.The Laplace correction was computed from DEFLEC12B derived deflections.

MC1011

MC1011.The ellipsoidal height was determined by GPS observations

MC1011.and is referenced to NAD 83.

MC1011

MC1011.The dynamic height is computed by dividing the NAVD 88

MC1011.geopotential number by the normal gravity value computed on the

MC1011.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MC1011.degrees latitude (g = 980.6199 gals.).

MC1011

MC1011.The modeled gravity was interpolated from observed gravity values.

MC1011

MC1011. The following values were computed from the NAD 83(2011) position.

MC1011

MC1011;		North	East	Units	Scale	Factor	Converg.
MC1011;SPC OH N	-	206,188.164	547,779.701	MT	0.99997049	-0 24 39.7	
MC1011;SPC OH N	-	676,469.00	1,797,173.90	sFT	0.99997049	-0 24 39.7	
MC1011;UTM 17	-	4,598,858.123	322,641.298	MT	0.99998712	-1 24 34.1	
MC1011!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC1011!SPC OH N	-	0.99997765	x	0.99997049	=	0.99994814	
MC1011!UTM 17	-	0.99997765	x	0.99998712	=	0.99996477	

MC1011

MC1011 SUPERSEDED SURVEY CONTROL

MC1011

MC1011	NAD 83(2007)-	41 31 18.22742(N)	083 07 32.35704(W)	AD(2002.00)	0
MC1011	ELLIP H (02/10/07)	142.505 (m)		GP(2002.00)	
MC1011	ELLIP H (10/07/05)	142.520 (m)		GP( )	4 1
MC1011	NAD 83(1995)-	41 31 18.22740(N)	083 07 32.35712(W)	AD( )	1
MC1011	ELLIP H (04/01/98)	142.580 (m)		GP( )	4 1
MC1011	NAD 83(1994)-	41 31 18.22734(N)	083 07 32.35702(W)	AD( )	1
MC1011	NAD 83(1986)-	41 31 18.23814(N)	083 07 32.37046(W)	AD( )	1
MC1011	NAVD 88 (09/14/94)	178.04 (m)	584.1 (f)	LEVELING	3
MC1011	NGVD 29 (06/03/92)	178.245 (m)	584.79 (f)	ADJUSTED	1 2

MC1011

MC1011.Superseded values are not recommended for survey control.

MC1011

MC1011.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC1011.See file dsdata.txt to determine how the superseded data were derived.

MC1011

MC1011\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF2264198858(NAD 83)

MC1011

MC1011\_MARKER: I = METAL ROD

MC1011\_SETTING: 49 = STAINLESS STEEL ROD W/O SLEEVE (10 FT.+)

MC1011\_STAMPING: Y 316 1980

MC1011\_MARK LOGO: NGS

MC1011\_PROJECTION: FLUSH

MC1011\_MAGNETIC: I = MARKER IS A STEEL ROD

MC1011\_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

MC1011+STABILITY: POSITION/ELEVATION WELL



MC1011\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC1011+SATELLITE: SATELLITE OBSERVATIONS - April 26, 2012

MC1011\_ROD/PIPE-DEPTH: 6.4 meters

MC1011

MC1011	HISTORY	- Date	Condition	Report By
MC1011	HISTORY	- 1980	MONUMENTED	NGS
MC1011	HISTORY	- 19930924	GOOD	GEOMET
MC1011	HISTORY	- 20040729	POOR	OHDT
MC1011	HISTORY	- 20120426	GOOD	WOOLPT

MC1011

MC1011 STATION DESCRIPTION

MC1011

MC1011'DESCRIBED BY NATIONAL GEODETIC SURVEY 1980

MC1011'1.76 KM EAST FROM OAK HARBOR.

MC1011'1.60 KILOMETERS (1.0 MILE) EAST ALONG THE PENN CENTRAL RAILROAD FROM  
MC1011'THE CROSSING OF STATE HIGHWAY 19 AT OAK HARBOR, THENCE 0.16 KILOMETER  
MC1011'(0.1 MILE) NORTH ALONG BEHLMAN ROAD, SET IN THE LAWN ON THE WEST SIDE  
MC1011'OF A LARGE RED AND WHITE METAL SIDED BARN, 45.4 METERS (149.0 FEET)  
MC1011'SOUTH-SOUTHWEST OF THE SOUTHWEST CORNER OF THE PORCH OF THE WEST SIDE  
MC1011'OF A TWO-STORY WHITE HOUSE, 36.3 METERS (119.0 FEET) WEST AND IN LINE  
MC1011'WITH THE SOUTH FACE OF THE SOUTHWEST CORNER OF THE BARN, 18.9 METERS  
MC1011'(62.0 FEET) SOUTH OF THE CENTER OF A GRAVEL DRIVE LEADING TO THE  
MC1011'HOUSE AND BARN, 11.0 METERS (36.0 FEET) EAST OF THE CENTER OF BEHLMAN  
MC1011'ROAD.

MC1011'THE MARK IS 0.6 M BELOW ROAD.

MC1011

MC1011 STATION RECOVERY (1993)

MC1011

MC1011'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1993

MC1011'RECOVERED IN GOOD CONDITION.

MC1011

MC1011 STATION RECOVERY (2004)

MC1011

MC1011'RECOVERY NOTE BY OHIO DEPARTMENT OF TRANSPORTATION 2004 (JS)

MC1011'LOCAL ENGINEERING FIRM HAS PLACED A PLASTIC LOGO CAP ON THE STAINLESS  
MC1011'STEEL ROD. MARK SHOULD NOT BE USED FOR ELEVATION UNTIL THIS CAP IS  
MC1011'REMOVED

MC1011

MC1011 STATION RECOVERY (2012)

MC1011

MC1011'RECOVERY NOTE BY WOOLPERT CONSULTANTS 2012 (CJS)

MC1011'RECOVERED IN GOOD CONDITION.

\*\*\* retrieval complete.

Elapsed Time = 00:00:03

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 31, 2016
AB6124 *****
AB6124 CBN - This is a Cooperative Base Network Control Station.
AB6124 DESIGNATION - YORSAN
AB6124 PID - AB6124
AB6124 STATE/COUNTY- OH/SANDUSKY
AB6124 COUNTRY - US
AB6124 USGS QUAD - CLYDE (1969)
AB6124
AB6124 *CURRENT SURVEY CONTROL
AB6124
AB6124* NAD 83(2011) POSITION- 41 17 33.05735(N) 082 54 21.15248(W) ADJUSTED
AB6124* NAD 83(2011) ELLIP HT- 193.691 (meters) (06/27/12) ADJUSTED
AB6124* NAD 83(2011) EPOCH - 2010.00
AB6124* NAVD 88 ORTHO HEIGHT - 228.9 (meters) 751. (feet) GPS OBS
AB6124
AB6124 NAVD 88 orthometric height was determined with geoid model GEOID93
AB6124 GEOID HEIGHT - -35.241 (meters) GEOID93
AB6124 GEOID HEIGHT - -35.264 (meters) GEOID12B
AB6124 NAD 83(2011) X - 592,719.753 (meters) COMP
AB6124 NAD 83(2011) Y - -4,762,620.415 (meters) COMP
AB6124 NAD 83(2011) Z - 4,187,013.900 (meters) COMP
AB6124 LAPLACE CORR - 1.11 (seconds) DEFLEC12B
AB6124
AB6124 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
AB6124 Standards:
AB6124 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
AB6124 Horiz Ellip SD_N SD_E SD_h (unitless)
AB6124 -----
AB6124 NETWORK 1.44 3.02 0.65 0.51 1.54 -0.10497694
AB6124 -----
AB6124 Click here for local accuracies and other accuracy information.
AB6124
AB6124
AB6124.The horizontal coordinates were established by GPS observations
AB6124.and adjusted by the National Geodetic Survey in June 2012.
AB6124
AB6124.NAD 83(2011) refers to NAD 83 coordinates where the reference
AB6124.frame has been affixed to the stable North American tectonic plate. See
AB6124.NA2011 for more information.
AB6124
AB6124.The horizontal coordinates are valid at the epoch date displayed above
AB6124.which is a decimal equivalence of Year/Month/Day.
AB6124
AB6124.The orthometric height was determined by GPS observations and a
AB6124.high-resolution geoid model.
AB6124
AB6124.Significant digits in the geoid height do not necessarily reflect accuracy.
AB6124.GEOID12B height accuracy estimate available here.

```

AB6124  
 AB6124.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 AB6124  
 AB6124.The Laplace correction was computed from DEFLEC12B derived deflections.  
 AB6124  
 AB6124.The ellipsoidal height was determined by GPS observations  
 AB6124.and is referenced to NAD 83.  
 AB6124  
 AB6124. The following values were computed from the NAD 83(2011) position.  
 AB6124  

AB6124;		North	East	Units	Scale Factor	Converg.
AB6124;SPC OH N	-	180,624.144	566,004.923	MT	0.99994682	-0 15 59.9
AB6124;SPC OH N	-	592,597.71	1,856,967.82	sFT	0.99994682	-0 15 59.9
AB6124;UTM 17	-	4,572,981.743	340,419.814	MT	0.99991341	-1 15 28.7

 AB6124  

AB6124!	-	Elev Factor	x	Scale Factor	=	Combined Factor
AB6124!SPC OH N	-	0.99996962	x	0.99994682	=	0.99991644
AB6124!UTM 17	-	0.99996962	x	0.99991341	=	0.99988303

 AB6124  
 AB6124 SUPERSEDED SURVEY CONTROL  
 AB6124  

AB6124	NAD 83(2007)-	41 17 33.05753(N)	082 54 21.15319(W)	AD(2002.00)	0
AB6124	ELLIP H (02/10/07)	193.705 (m)		GP(2002.00)	
AB6124	ELLIP H (03/08/05)	193.706 (m)		GP(	) 4 2
AB6124	NAD 83(1995)-	41 17 33.05744(N)	082 54 21.15317(W)	AD(	) B
AB6124	ELLIP H (08/20/96)	193.721 (m)		GP(	) 4 2

 AB6124  
 AB6124.Superseded values are not recommended for survey control.  
 AB6124  
 AB6124.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AB6124.See file dsdata.txt to determine how the superseded data were derived.  
 AB6124  
 AB6124\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLF4041972981(NAD 83)  
 AB6124  
 AB6124\_MARKER: I = METAL ROD  
 AB6124\_SETTING: 59 = STAINLESS STEEL ROD IN SLEEVE (10 FT.+)
 AB6124\_STAMPING: YORSAN 1995  
 AB6124\_MARK LOGO: OHDT  
 AB6124\_PROJECTION: FLUSH  
 AB6124\_MAGNETIC: N = NO MAGNETIC MATERIAL  
 AB6124\_STABILITY: B = PROBABLY HOLD POSITION/ELEVATION WELL  
 AB6124\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 AB6124+SATELLITE: SATELLITE OBSERVATIONS - 1995  
 AB6124\_ROD/PIPE-DEPTH: 3.66 meters  
 AB6124\_SLEEVE-DEPTH : .91 meters  
 AB6124  

AB6124	HISTORY	- Date	Condition	Report By
AB6124	HISTORY	- 1995	MONUMENTED	OHDT

 AB6124  
 AB6124 STATION DESCRIPTION  
 AB6124  
 AB6124'DESCRIBED BY OHIO DEPARTMENT OF TRANSPORTATION 1995 (MDB)  
 AB6124'THE ROD MARK IS LOCATED APPROXIMATELY 5.6 KM (3.45 MI) SOUTH-SOUTHEAST  
 AB6124'OF CLYDE, AND 6.0 KM (3.70 MI) NORTH-NORTHWEST OF BELLEVUE IN T14N  
 AB6124'R17E, YORK TOWNSHIP IN SANDUSKY COUNTY. THE ELEMENTARY SCHOOL IS PART



AB6124'OF THE BELLEVUE SCHOOL DISTRICT. TO REACH THE MARK FROM CLYDE AT THE  
AB6124'INTERSECTION OF US 20 AND SR 101, GO SOUTH-SOUTHEAST ON US 20, 5.6 KM  
AB6124'(3.45 MI) TO THE YORK ELEMENTARY SCHOOL ON THE LEFT (NORTH) SIDE OF  
AB6124'THE ROAD. THE ROD MARK IS LOCATED NORTHWEST OF THE NORTHWEST CORNER  
AB6124'OF THE ONE STORY SECTION OF THE SCHOOL ON THE WEST SIDE. THE ROD MARK  
AB6124'IS A MEASURED DISTANCE OF 60.9 M (199.8 FT) NORTH-NORTHWEST OF THE  
AB6124'NORTHWEST CORNER OF THE ONE STORY SECTION OF THE SCHOOL ON THE WEST  
AB6124'SIDE, A MEASURED DISTANCE OF 117.5 M (385.5 FT) NORTH OF THE  
AB6124'CENTERLINE OF PAVEMENT OF US 20 WEST BOUND LANES, A MEASURED DISTANCE  
AB6124'OF 9.1 M (29.9 FT) SOUTH OF THE LINE THAT SEPARATES THE CULTIVATED  
AB6124'FIELD AND THE SCHOOL PLAYGROUND, A MEASURED DISTANCE OF 58.3 M (191.3  
AB6124'FT) NORTH-NORTHEAST OF THE SOUTHEAST CORNER OF A BRICK BUS GARAGE, AND  
AB6124'A MEASURED DISTANCE OF 57.5 M (188.6 FT) SOUTH-SOUTHEAST OF THE  
AB6124'NORTHEAST CORNER OF THE SAME BUILDING. A FIBERGLASS WITNESS POST WAS  
AB6124'SET 0.7 M (2.3 FT) NORTH OF THE MARK. THE LOGO CAP WAS STAMPED  
AB6124'--YORSAN 1995--. NOTE--SLEEVE DEPTH DOES NOT MEET CLASS A  
AB6124'REQUIREMENTS.

\*\*\* retrieval complete.  
Elapsed Time = 00:00:03

# The NGS Data Sheet

See file [dsdata.txt](#) for more information about the datasheet.

```

PROGRAM = datasheet95, VERSION = 8.8
1      National Geodetic Survey,      Retrieval Date = MAY 31, 2016
MC0984 *****
MC0984 CBN - This is a Cooperative Base Network Control Station.
MC0984 TIDAL BM - This is a Tidal Bench Mark.
MC0984 DESIGNATION - Z 317
MC0984 PID - MC0984
MC0984 STATE/COUNTY- OH/OTTAWA
MC0984 COUNTRY - US
MC0984 USGS QUAD - KELLEYS ISLAND (1979)
MC0984
MC0984 *CURRENT SURVEY CONTROL
MC0984
MC0984* NAD 83(2011) POSITION- 41 32 34.53858(N) 082 43 54.65175(W) ADJUSTED
MC0984* NAD 83(2011) ELLIP HT- 141.827 (meters) (06/27/12) ADJUSTED
MC0984* NAD 83(2011) EPOCH - 2010.00
MC0984* NAVD 88 ORTHO HEIGHT - 177.309 (meters) 581.72 (feet) ADJUSTED
MC0984
MC0984 NAD 83(2011) X - 604,850.184 (meters) COMP
MC0984 NAD 83(2011) Y - -4,742,508.605 (meters) COMP
MC0984 NAD 83(2011) Z - 4,207,835.918 (meters) COMP
MC0984 LAPLACE CORR - 1.51 (seconds) DEFLEC12B
MC0984 GEOID HEIGHT - -35.491 (meters) GEOID12B
MC0984 DYNAMIC HEIGHT - 177.238 (meters) 581.49 (feet) COMP
MC0984 MODELED GRAVITY - 980,217.2 (mgal) NAVD 88
MC0984
MC0984 VERT ORDER - FIRST CLASS II
MC0984
MC0984 Network accuracy estimates per FGDC Geospatial Positioning Accuracy
MC0984 Standards:
MC0984 FGDC (95% conf, cm) Standard deviation (cm) CorrNE
MC0984 Horiz Ellip SD_N SD_E SD_h (unitless)
MC0984 -----
MC0984 NETWORK 0.40 0.67 0.18 0.14 0.34 0.01457954
MC0984 -----
MC0984 Click here for local accuracies and other accuracy information.
MC0984
MC0984
MC0984.The horizontal coordinates were established by GPS observations
MC0984.and adjusted by the National Geodetic Survey in June 2012.
MC0984
MC0984.NAD 83(2011) refers to NAD 83 coordinates where the reference
MC0984.frame has been affixed to the stable North American tectonic plate. See
MC0984.NA2011 for more information.
MC0984
MC0984.The horizontal coordinates are valid at the epoch date displayed above
MC0984.which is a decimal equivalence of Year/Month/Day.
MC0984
MC0984.The orthometric height was determined by differential leveling and
MC0984.adjusted by the NATIONAL GEODETIC SURVEY

```

MC0984.in June 1991.

MC0984

MC0984.Significant digits in the geoid height do not necessarily reflect accuracy.

MC0984.GEOID12B height accuracy estimate available here.

MC0984

MC0984.This Tidal Bench Mark is designated as VM 12827

MC0984.by the CENTER FOR OPERATIONAL OCEANOGRAPHIC PRODUCTS AND SERVICES.

MC0984

MC0984.Photographs are available for this station.

MC0984

MC0984.The X, Y, and Z were computed from the position and the ellipsoidal ht.

MC0984

MC0984.The Laplace correction was computed from DEFLEC12B derived deflections.

MC0984

MC0984.The ellipsoidal height was determined by GPS observations

MC0984.and is referenced to NAD 83.

MC0984

MC0984.The dynamic height is computed by dividing the NAVD 88

MC0984.geopotential number by the normal gravity value computed on the

MC0984.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

MC0984.degrees latitude (g = 980.6199 gals.).

MC0984

MC0984.The modeled gravity was interpolated from observed gravity values.

MC0984

MC0984. The following values were computed from the NAD 83(2011) position.

MC0984

MC0984;		North	East	Units	Scale	Factor	Converg.
MC0984;SPC OH N	-	208,380.796	580,654.929	MT	0.99997349	-0 09 08.3	
MC0984;SPC OH N	-	683,662.66	1,905,032.05	sFT	0.99997349	-0 09 08.3	
MC0984;UTM 17	-	4,600,478.051	355,547.994	MT	0.99985679	-1 08 55.4	
MC0984!	-	Elev Factor	x	Scale Factor	=	Combined Factor	
MC0984!SPC OH N	-	0.99997775	x	0.99997349	=	0.99995125	
MC0984!UTM 17	-	0.99997775	x	0.99985679	=	0.99983455	

MC0984

MC0984	PID	Reference Object	Distance	Geod. Az
MC0984				ddmmss.s
MC0984	AH9236 906 3079 L		72.370 METERS	03046

MC0984

MC0984

#### SUPERSEDED SURVEY CONTROL

MC0984

MC0984	NAD 83(2007)-	41 32 34.53871(N)	082 43 54.65249(W)	AD(2002.00)	0
MC0984	ELLIP H (02/10/07)	141.843 (m)		GP(2002.00)	
MC0984	ELLIP H (09/23/04)	141.835 (m)		GP(	) 4 1
MC0984	NAD 83(1995)-	41 32 34.53873(N)	082 43 54.65255(W)	AD(	) B
MC0984	ELLIP H (08/20/96)	141.851 (m)		GP(	) 4 2
MC0984	NAVD 88 (08/20/96)	177.31 (m)	581.7 (f)	LEVELING	3
MC0984	NGVD 29 (06/03/92)	177.521 (m)	582.42 (f)	ADJUSTED	1 2

MC0984

MC0984.Superseded values are not recommended for survey control.

MC0984

MC0984.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

MC0984.See file dsdata.txt to determine how the superseded data were derived.





MC0984\_U.S. NATIONAL GRID SPATIAL ADDRESS: 17TLG5554700478(NAD 83)

MC0984 MARKER: F = FLANGE-ENCASED ROD

MC0984 STAMPING: Z 317 1980

MC0984\_PROJECTION: FLUSH

MC0984\_STABILITY: A = MOST RELIABLE AND EXPECTED TO HOLD

MC0984\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

MC0984+SATELLITE: SATELLITE OBSERVATIONS - October 10, 2011

MC0984 ROD/PIPE-DEPTH: 3.0 meters

MC0984	HISTORY	- Date	Condition	Report By
--------	---------	--------	-----------	-----------

MC0984 HISTORY - 1980 MONUMENTED NGS

MC0984 HISTORY - 19950804 GOOD NGS

MC0984 HISTORY - 2003 GOOD NGS

MC0984 HISTORY - 20051108 GOOD INDIV

MC0984 HISTORY - 20111010 GOOD GEOCAC

MC0984	STATION DESCRIPTION
--------	---------------------

MC0984'DESCRIBED BY NATIONAL GEODETIC SURVEY 1980

MC0984'2.12 KM NE FROM LAKESIDE.

MC0984'1.8 KILOMETERS (1.1 MILES) NORTHEAST ALONG STATE HIGHWAY 163 FROM THE

MC0984 'CROSSING OF MARBLEHEAD RAILROAD IN LAKESIDE, THENCE 0.32 KILOMETER

MC0984' (0.20 MILE) NORTH ALONG A PAVED ROAD LEADING TO THE US COAST GUARD

MC0984' PROPERTY, SET IN THE GRASSY AREA AT THE NORTH END OF THE PARKING LOT

MC0984' ON THE WEST SIDE OF THE COAST GUARD BUILDING, 63.4 METERS (208.0 FEET)

MC0984' NORTHWEST OF THE NORTHWEST CORNER OF THE BUILDING, 56.4 METERS (185.0

MC0984' FEET) NORTH-NORTHWEST OF THE NORTHWEST LEG OF A 3-LEGGED METAL TOWER,

MC0984'39.6 METERS (130.0 FEET) WEST OF THE CENTER OF THE PAVED ROAD LEADING

MC0984'DOWN TO THE BOAT HOUSE, 2.8 METERS (9.2 FEET) EAST OF A NORTH-SOUTH

MC0984' FENCE LINE, 6.55 METERS (21.5 FEET) NORTH OF THE NORTHWEST CORNER OF

MC0984 'THE PAVED PARKING LOT.

MC0984'NOTE-THIS MARK WAS DRILLED WITH THE DRILL RIG UNTIL ROCK WAS HIT AT

MC0984'3.0 METERS, THEN THE ROD WAS CEMENTED IN THE DRILL HOLE IN THE ROCK.

MC0984 'THE MARK IS 2.0 METERS E FROM A WITNESS POST.

MC0984'THE MARK IS 0.6 M BELOW PARKING LOT.

MC0984 STATION RECOVERY (1995)

MC0984

MC0984'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1995 (AJL)

MC0984 'RECOVERED IN GOOD CONDITION. SOME REFERENCES IN THE ORIGINAL

MC0984'DESCRIPTION ARE MISLEADING BECAUSE THE COAST GUARD STATION BUILDING IS

MC0984'REPLACED WITH A NEW ONE. THE STATION IS LOCATED ABOUT 10.0 KM (6.20

MC0984' MI) NORTH OF SANDUSKY, 2.01 KM (1.25 MI) EAST OF LAKESIDE, ON PROPERTY

MC0984' OF THE US COAST GUARD STATION IN MARBLEHEAD, JUST EAST OF THE NEUMAN

MC0984' FERRY LANDING. THE MARK IS SET IN A GRASSY AREA AT THE WEST SIDE OF

MC0984 'THE COAST GUARD BUILDING, BETWEEN THE ROAD LEADING DOWN TO THE WATER

MC0984' AND A FENCE, 17.1 M (56.1 FT) NORTHWEST OF THE NORTHWEST CORNER OF THE

MC0984' COAST GUARD STATION, 12.3 M (40.4 FT) WEST-SOUTHWEST OF BM 3079K 1993

MC0984' (WHICH IS SET IN THE 1.2 METER-SQUARE BASE OF AN ANTENNA TOWER) , 8.2



MC0984'M (26.9 FT) NORTH-NORTHEAST OF THE SOUTHEAST CORNER OF A 3.0  
MC0984'METER-HIGH CONCRETE BLOCK BUILDING, 3.5 M (11.5 FT) EAST OF THE  
MC0984'NORTHEAST CORNER OF THE SAME BUILDING, 2.9 M (9.5 FT) EAST OF A FENCE,  
MC0984'AND 2.0 M (6.6 FT) EAST OF A STEEL WITNESS POST.

MC0984

MC0984

STATION RECOVERY (2003)

MC0984

MC0984'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 2003 (DAC)

MC0984'RECOVERED AS DESCRIBED. MARBLEHEAD COAST GUARD TELEPHONE NUMBER IS

MC0984'419-798-4445.

MC0984

MC0984

STATION RECOVERY (2005)

MC0984

MC0984'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2005 (JFP)

MC0984'RECOVERED IN GOOD CONDITION.

MC0984

MC0984

STATION RECOVERY (2011)

MC0984

MC0984'RECOVERY NOTE BY GEOCACHING 2011 (RLM)

MC0984'RECOVERED IN GOOD CONDITION.

MC0984'

\*\*\* retrieval complete.



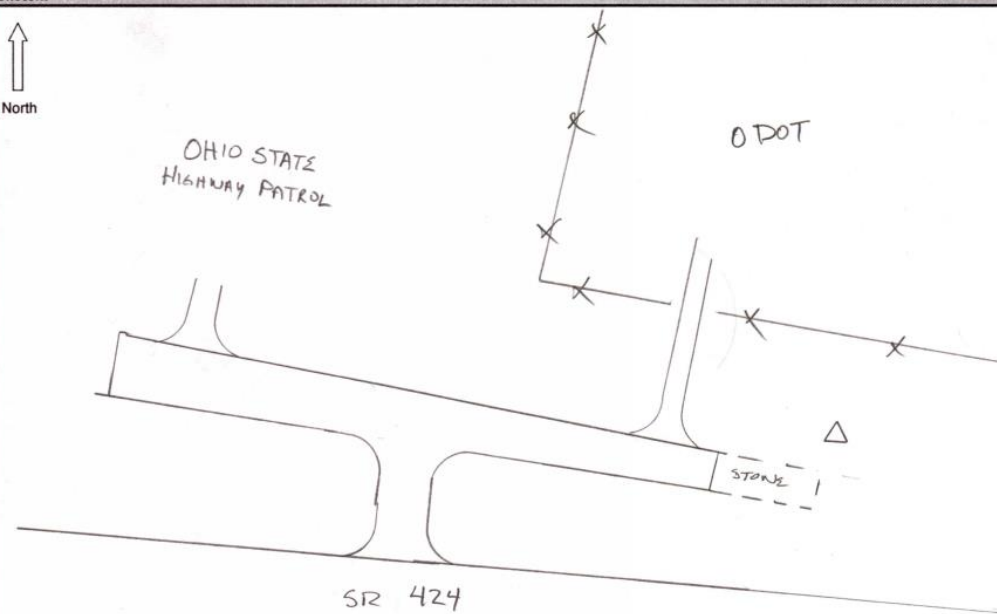
Elapsed Time = 00:00:03



## Section 4: Station Observation Sheets and Photos

This section contains the station observation sheets and photos for all of the recovered geodetic control stations for the USGS Lower Maumee 2016 LiDAR Project. The stations appear as they are ordered in the final coordinate listing of Section 2. LiDAR quality control stations were not documented.

## Geodetic Control Stations and/or Geodetic Control Station Checks

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
Project Name: <u>MAUMEE LIDAR</u>		Operator Name: <u>Rick Webb</u>		Job No. <u>76327</u>															
Station Name: <u>24 1109</u> <u>IG 7166</u>		Date of Survey: <u>11-May-16</u> Julian Day <u>132</u>																	
WGS 84 Coordinates:		File Name: <u>76327-132-LW</u> Session # <u>      </u>																	
Latitude <u>41 16 31.32</u>		Type of Receiver: <u>R-10</u>																	
Longitude <u>84 24 44.51</u>		Type of Antenna: <u>INTERNAL</u>																	
Ellip. Height <u>593.63'</u>																			
Type of Mark: <u>Rod</u>		Antenna Height: <u>2.00</u> <div style="float: right; text-align: right;">             Circle one:    Circle one:              USFT            ARP              Meters        Phase Center           </div>																	
Stamping on Mark: <u>24 1109</u>		Start Time (local) : <u>                    </u>																	
		Weather Condition: <u>                    </u>																	
To-Reach Description:		Witness Ties:																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>Reference Object</th> <th>Distance</th> <th>Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
		Reference Object	Distance	Azimuth															
		1)																	
		2)																	
		3)																	
4)																			
Sketch:																			
<div style="display: flex; justify-content: space-between;"> <div style="text-align: center;">             North         </div> <div>  </div> </div>																			





24 1109, DG7166, 1, 11MAY2016



24 1109, DG7166, 3N, 11MAY2016



24 1109, DG7166, 2, 11MAY2016



24 1109, DG7166, 3S, 11MAY2016



24 1109, DG7166, 3E, 11MAY2016



24 1109, DG7166, 3W, 11MAY2016

GPS Station Recovery - GPS Log Sheet		 <b>WOOLPERT</b>	
Project Name:	<u>MAUMEE LIAR</u>	Operator Name:	<u>Rick Webb</u>
		Job No.:	<u>76327</u>
Station Name:	<u>C 182 (MC073C)</u>	Date of Survey:	<u>10 MAY 2016</u> Julian Day <u>131</u>
WGS 84 Coordinates:		File Name:	<u>76327-131-RN</u> Session # <u>      </u>
Latitude	<u>41 42 28.67</u>	Type of Receiver:	<u>R-10</u>
Longitude	<u>83 31 38.78</u>	Type of Antenna:	<u>INTERNAL</u>
Ellip. Height	<u>476.58</u>		
Type of Mark:	<u>DISK IN CONC</u>	Antenna Height:	<u>20</u> <del>2.25</del>
Stamping on Mark:	<u>C 182 1953</u>	<div style="display: flex; justify-content: space-between;"> <span>Circle one: <u>USFT</u></span> <span>Circle one: <u>ARP</u></span> </div> <div style="display: flex; justify-content: space-between;"> <span><u>Meters</u></span> <span>Phase Center</span> </div>	
To-Reach Description:		Start Time (local): <u>                    </u>	
		Weather Condition: <u>                    </u>	
Witness Ties:		Reference Object	
		Distance	
		Azimuth	
		1)	
		2)	
		3)	
		4)	
Sketch:			





C 182, MC0736, 1, 10MAY2016



C 182, MC0736, 3N, 10MAY2016



C 182, MC0736, 2, 10MAY2016



C 182, MC0736, 3S, 10MAY2016





C 182, MC0736, 3E, 10MAY2016

N/A

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
Project Name:	<u>MAUMEE Lidar</u>	Operator Name:	<u>Rick Webb</u>	Job No. <u>76327</u>															
Station Name:	<u>G181 (MCOG72)</u>	Date of Survey:	<u>10 MAY 2016</u>	Julian Day <u>131</u>															
WGS 84 Coordinates:		File Name:	<u>76327-131.RW</u>	Session # _____															
Latitude	<u>41° 31' 41.34"</u>	Type of Receiver:	<u>R-10</u>																
Longitude	<u>83° 39' 20.18"</u>	Type of Antenna:	<u>INTERNAL</u>																
Ellip. Height	<u>526.30</u>	Antenna Height:	<u>2.00m</u> <del>2.25</del>	<div style="display: flex; justify-content: space-between; font-size: small;"> <span>Circle one: USFT Meters</span> <span>Circle one: ARP Phase Center</span> </div>															
Type of Mark:	<u>DISK on top of Box</u> <span style="margin-left: 100px;"><u>culvert</u></span>	Start Time (local):	_____																
Stamping on Mark:	<u>G181 1954</u>	Weather Condition:	_____																
To-Reach Description:		Witness Ties:																	
		<table border="1" style="width: 100%; border-collapse: collapse; font-size: x-small;"> <thead> <tr> <th>Reference Object</th> <th>Distance</th> <th>Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																	
1)																			
2)																			
3)																			
4)																			
Sketch:																			
<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;">               North           </div> <div> </div> </div>																			



GPS Station Recovery - GPS Log Sheet			 WOOLPERT																
<b>Project Name:</b>	<u>MAUMEE LIDAR</u>	<b>Operator Name</b>	<u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b>	<u>G 181 (MC0672)</u>	<b>Date of Survey:</b>	<u>11-May-16</u> Julian Day <u>132</u>																
<b>WGS 84 Coordinates:</b>		<b>File Name:</b>	<u>76327-132-RW</u> Session # _____																
<b>Latitude</b>	<u>41 31 41.33</u>	<b>Type of Reciever:</b>	<u>R-10</u>																
<b>Longitude</b>	<u>83 39 20.19</u>	<b>Type of Antenna:</b>	<u>INTERNAL</u>																
<b>Ellip. Height</b>	<u>526.36'</u>	<b>Antenna Height:</b>	<u>2.00</u>	<div style="display: flex; justify-content: space-between;"> <div> <b>Circle one:</b>  <input checked="" type="radio"/> <b>Meters</b> </div> <div> <b>Circle one:</b>  <input type="radio"/> <b>USFT</b>  <input type="radio"/> <b>ARP</b>  <input type="radio"/> <b>Phase Center</b> </div> </div>															
<b>Type of Mark:</b>	<u>DISK Top of CULVERT</u>																		
<b>Stamping on Mark:</b>	<u>G 181 1954</u>	<b>Start Time (local) :</b>	_____																
<b>To-Reach Description:</b>		<b>Witness Ties:</b>																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
		Reference Object	Distance	Azimuth															
		1)																	
		2)																	
		3)																	
4)																			
<b>Sketch:</b>																			
<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 20px;">             North         </div> <div style="flex-grow: 1;"></div> </div>																			



G 181, MC0672, 1, 10MAY2016



G 181, MC0672, 3N, 10MAY2016



G 181, MC0672, 2, 10MAY2016



G 181, MC0672, 3S, 10MAY2016



G 181, MC0672, 3E, 10MAY2016

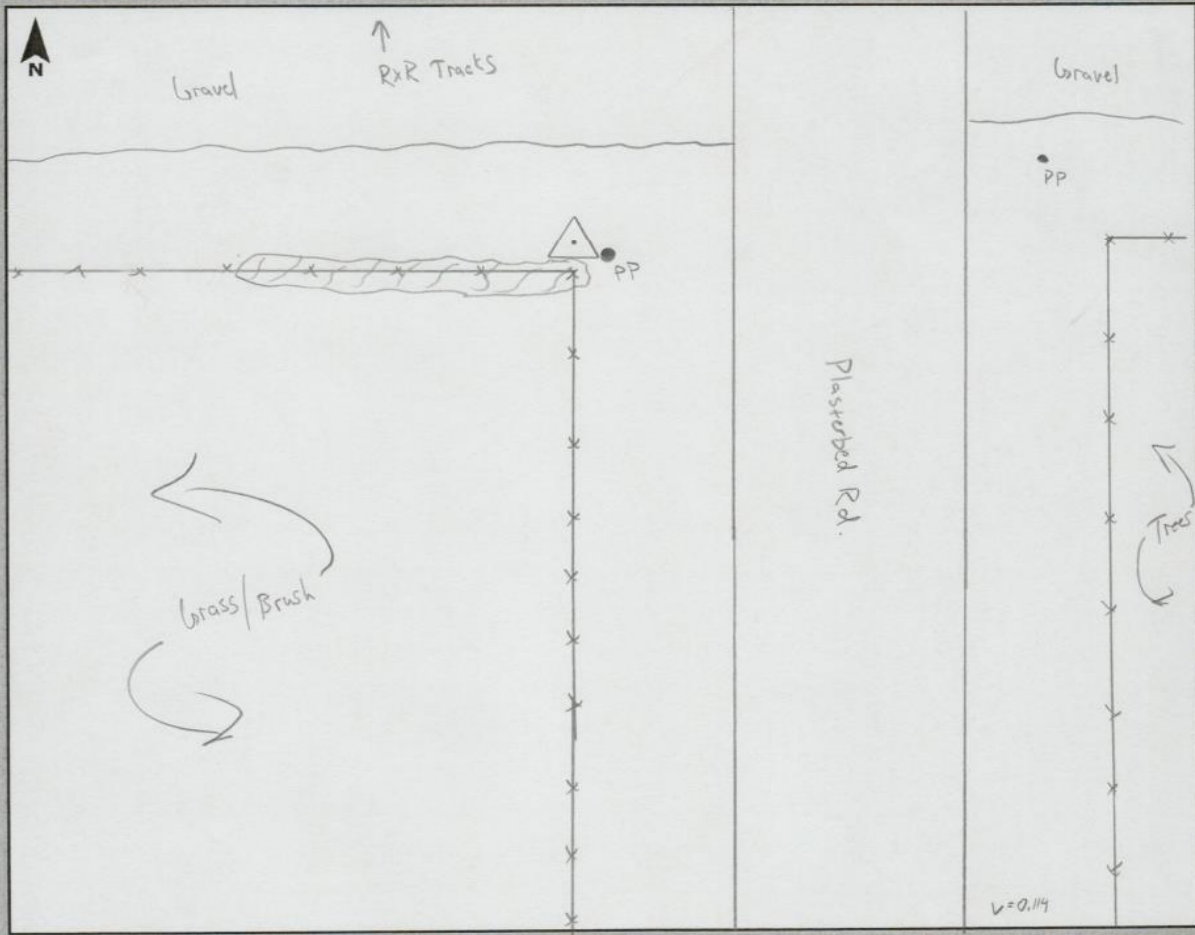


G 181, MC0672, 3W, 10MAY2016



## GPS Observation Log Sheet

Project Name: <u>Maumee Lidar 2016</u>	Project Number: <u>76327</u>	Survey Date: <u>5/25/16</u>
Station Name: <u>J317</u>	Operator Name: <u>Ron Siney</u>	
Latitude: <u>41° 30' 21.31"</u>	Julian Day: <u>146</u>	Session No. <u>3</u>
Longitude: <u>82° 53' 22.94"</u>	Start Time: <u>11:19</u>	End Time: <u>11:23</u>
Ellip. Height: <u>468.575 sf</u>	Data File Name: <u>MAUMEE-LIDAR-RAS</u>	
Type of Mark: <u>Deep Rod.</u>	Type of Receiver: <u>Trimble R10</u>	
Stamping on Mark: <u>J317 1980</u>	Type of Antenna: <u>Trimble Internal</u>	
Weather Condition: <u>Sunny 80's</u>	Antenna Height: <u>2.0m</u>	to bottom of antenna mount



## GPS Observation Log Sheet

Project Name: <u>Maumee Lidar 2016</u>	Project Number: <u>76327</u>	Survey Date: <u>5/26/16</u>
Station Name: <u>J 317</u>	Operator Name: <u>Ros Sindy</u>	
Latitude: <u>41° 30' 21.31"</u>	Julian Day: <u>147</u>	Session No. <u>3</u>
Longitude: <u>82° 53' 22.94"</u>	Start Time: <u>11:57</u>	End Time: <u>12:01</u>
Ellip. Height: <u>468,651 ft</u>	Data File Name: <u>MAUMEE-LIDAR-RAS</u>	
Type of Mark: <u>Deep Road</u>	Type of Receiver: <u>Trimble R10</u>	
Stamping on Mark: <u>J 317 1980</u>	Type of Antenna: <u>Trimble Internal</u>	
Weather Condition: <u>805 Sunny</u>	Antenna Height: <u>20 m</u>	to bottom of antenna mount



See Previous Sketch

H= 7.232  
V= 0.190





J 317, MC0994, 1, 25MAY2016



J 317, MC0994, 3N, 25MAY2016



J 317, MC0994, 2, 25MAY2016



J 317, MC0994, 3S, 25MAY2016



J 317, MC0994, 3E, 25MAY2016



J 317, MC0994, 3W, 25MAY2016

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
<b>Project Name:</b> <u>MAUMEE LIDAR</u>	<b>Operator Name</b> <u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>																	
<b>Station Name:</b> <u>K 16 MD0054</u>	<b>Date of Survey:</b> <u>12-May-16</u> Julian Day <u>133</u>																		
<b>WGS 84 Coordinates:</b>		<b>File Name:</b> <u>76327_133_RW</u> <b>Session #</b> <u>        </u>																	
<b>Latitude</b> <u>41 32 43.20334</u>	<b>Type of Receiver:</b> <u>R-10</u>																		
<b>Longitude</b> <u>84 08 51.38466</u>	<b>Type of Antenna:</b> <u>INTERNAL</u>																		
<b>Ellip. Height</b> <u>        </u> <u>655.66</u>	<b>Antenna Height:</b> <u>2.00M</u>		<div style="display: flex; justify-content: space-between;"> <div> <b>Circle one:</b>  <input type="radio"/> USFT  Meters </div> <div> <b>Circle one:</b>  <input type="radio"/> ARP  Phase Center </div> </div>																
<b>Type of Mark:</b> <u>DISK IN CONC</u>		<b>Start Time (local) :</b> <u>        </u>																	
<b>Stamping on Mark:</b> <u>K 16 1934</u>		<b>Weather Condition:</b> <u>73F OVERCAST</u>																	
<b>To-Reach Description:</b> <u>        </u>		<b>Witness Ties:</b> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																	
1)																			
2)																			
3)																			
4)																			
<b>Sketch:</b> <div style="border: 1px solid black; height: 300px; margin-top: 10px; position: relative;"> <div style="position: absolute; top: 10px; left: 10px;">   North </div> <div style="position: absolute; top: 20%; left: 20%;"> <div style="border: 1px solid black; padding: 5px; transform: rotate(-15deg); display: inline-block;">APT. BLDG</div> </div> <div style="position: absolute; top: 40%; left: 40%;"> <div style="border: 1px solid black; width: 40px; height: 20px; display: flex; align-items: center; justify-content: center;"> <div style="font-size: 8px;">CONC</div> <div style="font-size: 10px;">PAD</div> </div> </div> <div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%);"> <div style="font-size: 10px;">GRASS</div> </div> <div style="position: absolute; top: 60%; left: 50%;"> <div style="font-size: 10px;">WITNESS POST</div> </div> <div style="position: absolute; top: 65%; left: 55%;"> <div style="font-size: 10px;">OLD RR BED</div> </div> <div style="position: absolute; top: 15%; right: 10%;"> <div style="border: 1px solid black; border-radius: 50%; padding: 5px; display: flex; flex-wrap: wrap;"> <div style="width: 20px; height: 20px; border-radius: 50%;"></div> <div style="width: 20px; height: 20px; border-radius: 50%;"></div> <div style="width: 20px; height: 20px; border-radius: 50%;"></div> <div style="width: 20px; height: 20px; border-radius: 50%;"></div> </div> <div style="font-size: 10px; margin-top: 5px;">OLD FUEL TANKS</div> </div> <div style="position: absolute; top: 60%; right: 10%;"> <div style="font-size: 12px;">GRAVEL LOT</div> </div> <div style="position: absolute; bottom: 10%; right: 10%;"> <div style="font-size: 14px; transform: rotate(-5deg);">CHESTNUT ST</div> </div> </div>																			





K 16, MD0054, 1, 12MAY2016



K 16, MD0054, 3N, 12MAY2016



K 16, MD0054, 2, 12MAY2016



K 16, MD0054, 3S, 12MAY2016



K 16, MD0054, 3E, 12MAY2016



K 16, MD0054, 3W, 12MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<p>Project Name: <u>Maumee Lidar 2016</u></p> <p>Station Name: <u>N 316</u></p> <p>Latitude: <u>41° 33' 32.61"</u></p> <p>Longitude: <u>83° 20' 19.34"</u></p> <p>Ellip. Height: <u>483.890 sft</u></p> <p>Type of Mark: <u>Deep Rod (BN)</u></p> <p>Stamping on Mark: <u>N 316 1980</u></p> <p>Weather Condition: <u>Sunny 70's</u></p>	<p>Project Number: <u>76327</u>      Survey Date: <u>5/25/16</u></p> <p>Operator Name: <u>Ron Siney</u></p> <p>Julian Day: <u>146</u>      Session No. <u>1</u></p> <p>Start Time: <u>8:05</u>      End Time: <u>8:08</u></p> <p>Data File Name: <u>MAUMEE_LIDAR_RAS</u></p> <p>Type of Reciever: <u>Trimble R10</u></p> <p>Type of Antenna: <u>Trimble Internal</u></p> <p>Antenna Height: <u>2.0 m</u> to bottom of antenna mount</p>	
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: center;">   <b>N</b> </div> <div style="flex-grow: 1;"> </div> </div>		





N 316, MC1022, 1, 25MAY2016



N 316, MC1022, 3N, 25MAY2016



N 316, MC1022, 2, 25MAY2016



N 316, MC1022, 3S, 25MAY2016



N 316, MC1022, 3E, 25MAY2016



N 316, MC1022, 3W, 25MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<b>Project Name:</b> <u>Maumee Lidar 2016</u> <b>Station Name:</b> <u>Peninsula</u> <b>Latitude:</b> <u>41° 30' 30.72"</u> <b>Longitude:</b> <u>82° 52' 13.49"</u> <b>Ellip. Height:</b> <u>472.925 sf</u> <b>Type of Mark:</b> <u>Conc. Monument</u> <b>Stamping on Mark:</b> <u>PENINSULA 1956</u> <b>Weather Condition:</b> <u>Sunny 80's</u>	<b>Project Number:</b> <u>76327</u> <b>Survey Date:</b> <u>5/26/16</u> <b>Operator Name:</b> <u>Ron Siney</u> <b>Julian Day:</b> <u>147</u> <b>Session No.</b> <u>5</u> <b>Start Time:</b> <u>5:03</u> <b>End Time:</b> <u>5:06</u> <b>Data File Name:</b> <u>MAUMEE-LIDAR-RAS</u> <b>Type of Receiver:</b> <u>Trimble R10</u> <b>Type of Antenna:</b> <u>Trimble Internal</u> <b>Antenna Height:</b> <u>2.0 m</u> to bottom of antenna mount	



PENINSULA, MC1253, 1, CBN, 26MAY2016



PENINSULA, MC1253, 3N, CBN, 26MAY2016



PENINSULA, MC1253, 2, CBN, 26MAY2016



PENINSULA, MC1253, 3S, CBN, 26MAY2016



PENINSULA, MC1253, 3E, CBN, 26MAY2016



PENINSULA, MC1253, 3W, CBN, 26MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<b>Project Name:</b> <u>Maumee LiDAR 2016</u> <b>Station Name:</b> <u>R 344</u> <b>Latitude:</b> <u>41° 07' 32.13"</u> <b>Longitude:</b> <u>83° 14' 15.11"</u> <b>Ellip. Height:</b> <u>651,052.54</u> <b>Type of Mark:</b> <u>Deep Rod</u> <b>Stamping on Mark:</b> <u>R 344 1992</u> <b>Weather Condition:</b> <u>Sunny 80's</u>	<b>Project Number:</b> <u>76327</u> <b>Survey Date:</b> <u>5/24/16</u> <b>Operator Name:</b> <u>Ron Siney</u> <b>Julian Day:</b> <u>145</u> <b>Session No.</b> <u>2</u> <b>Start Time:</b> <u>4:14</u> <b>End Time:</b> <u>4:17</u> <b>Data File Name:</b> <u>MAUMEE_LIDAR_RAS</u> <b>Type of Receiver:</b> <u>Trimble R10</u> <b>Type of Antenna:</b> <u>Trimble Internal</u> <b>Antenna Height:</b> <u>2.0 m</u> to bottom of antenna mount	

$H = 0.036$   
 $V = 0.027$



R 344, MC1637, 1, CBN, 24MAY2016



R 344, MC1637, 3N, CBN, 24MAY2016



R 344, MC1637, 2, CBN, 24MAY2016



R 344, MC1637, 3S, CBN, 24MAY2016



R 344, MC1637, 3E, CBN, 24MAY2016



R 344, MC1637, 3W, CBN, 24MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<p>Project Name: <u>Maumee Lidar 2016</u></p> <p>Station Name: <u>RIALTO</u></p> <p>Latitude: <u>41° 39' 26.53"</u></p> <p>Longitude: <u>83° 15' 50.99"</u></p> <p>Ellip. Height: <u>455.5465ft</u></p> <p>Type of Mark: <u>Conc. Mon.</u></p> <p>Stamping on Mark: <u>RIALTO 1993</u></p> <p>Weather Condition: <u>Sunny 70's</u></p>	<p>Project Number: <u>76327</u>    Survey Date: <u>5/25/16</u></p> <p>Operator Name: <u>Ron Sindy</u></p> <p>Julian Day: <u>146</u>    Session No. <u>3</u></p> <p>Start Time: <u>9:23</u>    End Time: <u>9:26</u></p> <p>Data File Name: <u>MAUMEE_LIDAR_R45</u></p> <p>Type of Receiver: <u>Trimble R10</u></p> <p>Type of Antenna: <u>Trimble Internal</u></p> <p>Antenna Height: <u>2.0 m</u> to bottom of antenna mount</p>	

Rialto Dr.

H=0.054  
 V=0.352





RIALTO, MC1815, 1, 25MAY2016



RIALTO, MC1815, 3N, 25MAY2016



RIALTO, MC1815, 2, 25MAY2016



RIALTO, MC1815, 3S, 25MAY2016





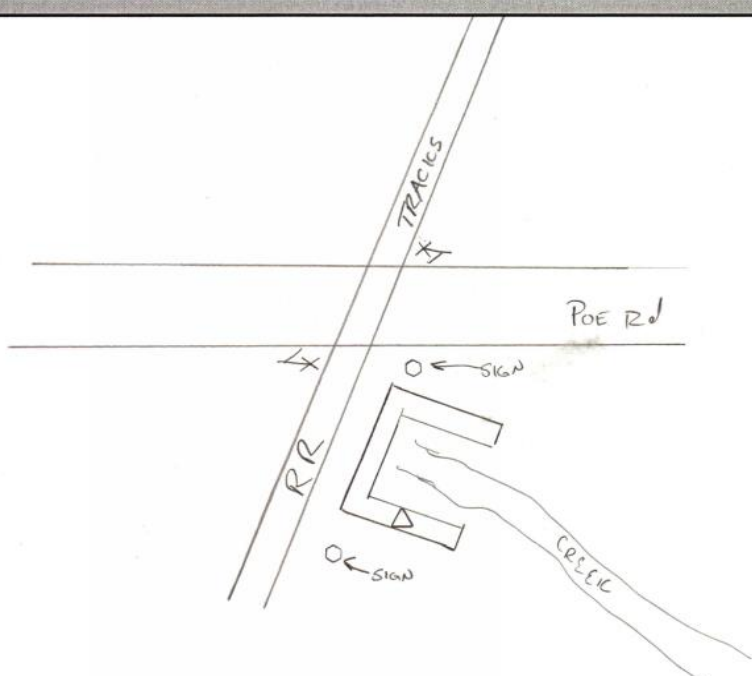
RIALTO, MC1815, 3E, 25MAY2016





RIALTO, MC1815, 3W, 25MAY2016

**GPS Station Recovery - GPS Log Sheet**



<b>Project Name:</b> <u>MAUMEE LIDAR</u> <u>Sandusky Co., Ohio</u>	<b>Operator Name</b> <u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b> <u>S 170 MC0532</u>	<b>Date of Survey:</b> <u>6-May-16</u> <b>Julian Day</b> <u>127</u>																
<b>WGS 84 Coordinates:</b>																	
<b>Latitude</b> <u>41°23'12.50"</u>	<b>File Name:</b> <u>76327_127_RW_43511270</u> <b>Session #</b> <u>        </u>																
<b>Longitude</b> <u>83°45'51.03"</u>	<b>Type of Receiver:</b> <u>R-10</u>																
<b>Ellip. Height</b> <u>558.70</u>	<b>Type of Antenna:</b> <u>INTERNAL</u>																
<b>Antenna Height:</b> <u>2.00</u>		<div style="display: flex; justify-content: space-between;"> <span><b>Circle one:</b></span> <span><b>Circle one:</b></span> </div> <div style="display: flex; justify-content: space-between;"> <span><u>USFT</u></span> <span><u>ARP</u></span> </div> <div style="display: flex; justify-content: space-between;"> <span><u>Meters</u></span> <span><u>Phase Center</u></span> </div>															
<b>Type of Mark:</b> <u>Horz &amp; VERT</u>																	
<b>Stamping on Mark:</b> <u>                                </u>																	
<b>To-Reach Description:</b> <u>                                </u>		<b>Witness Ties:</b> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>	Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth															
1)																	
2)																	
3)																	
4)																	
<b>Sketch:</b> <div style="border: 1px solid black; height: 250px; position: relative; margin-top: 10px;"> <div style="position: absolute; top: 10px; left: 10px;">  <p>North</p> </div> <div style="position: absolute; top: 40%; left: 40%;">  </div> </div>																	



GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
<b>Project Name:</b>	<u>MAUMEE LIDAR</u>	<b>Operator Name</b>	<u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b>	<u>S 170 MC0532</u>	<b>Date of Survey:</b>	<u>12-May-16</u> Julian Day <u>133</u>																
<b>WGS 84 Coordinates:</b>		<b>File Name:</b>	<u>76327_133_RW</u> Session # _____																
<b>Latitude</b>	<u>41 23 12.50585</u>	<b>Type of Reciever:</b>	<u>R-10</u>																
<b>Longitude</b>	<u>83 45 51.03731</u>	<b>Type of Antenna:</b>	<u>INTERNAL</u>																
<b>Ellip. Height</b>	<u>558.983</u>	<b>Antenna Height:</b>	<u>2.00M</u>	<div style="display: flex; justify-content: space-between;"> <div> <b>Circle one:</b>            USFT            Meters         </div> <div> <b>Circle one:</b>            ARP            Phase Center         </div> </div>															
<b>Type of Mark:</b>	<u>DISK IN ABUT</u>	<b>Start Time (local) :</b>	_____																
<b>Stamping on Mark:</b>	<u>S 170 1954</u>	<b>Weather Condition:</b>	_____																
<b>To-Reach Description:</b>		<b>Witness Ties:</b>																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
		Reference Object	Distance	Azimuth															
		1)																	
		2)																	
		3)																	
4)																			
<b>Sketch:</b>																			
<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 20px;">             North         </div> <div style="flex-grow: 1;"></div> </div>																			



S 170, MC0532, 1, 06MAY2016



S 170, MC0532, 3N, 06MAY2016



S 170, MC0532, 2, 06MAY2016



S 170, MC0532, 3S, 06MAY2016



S 170, MC0532, 3E, 06MAY2016

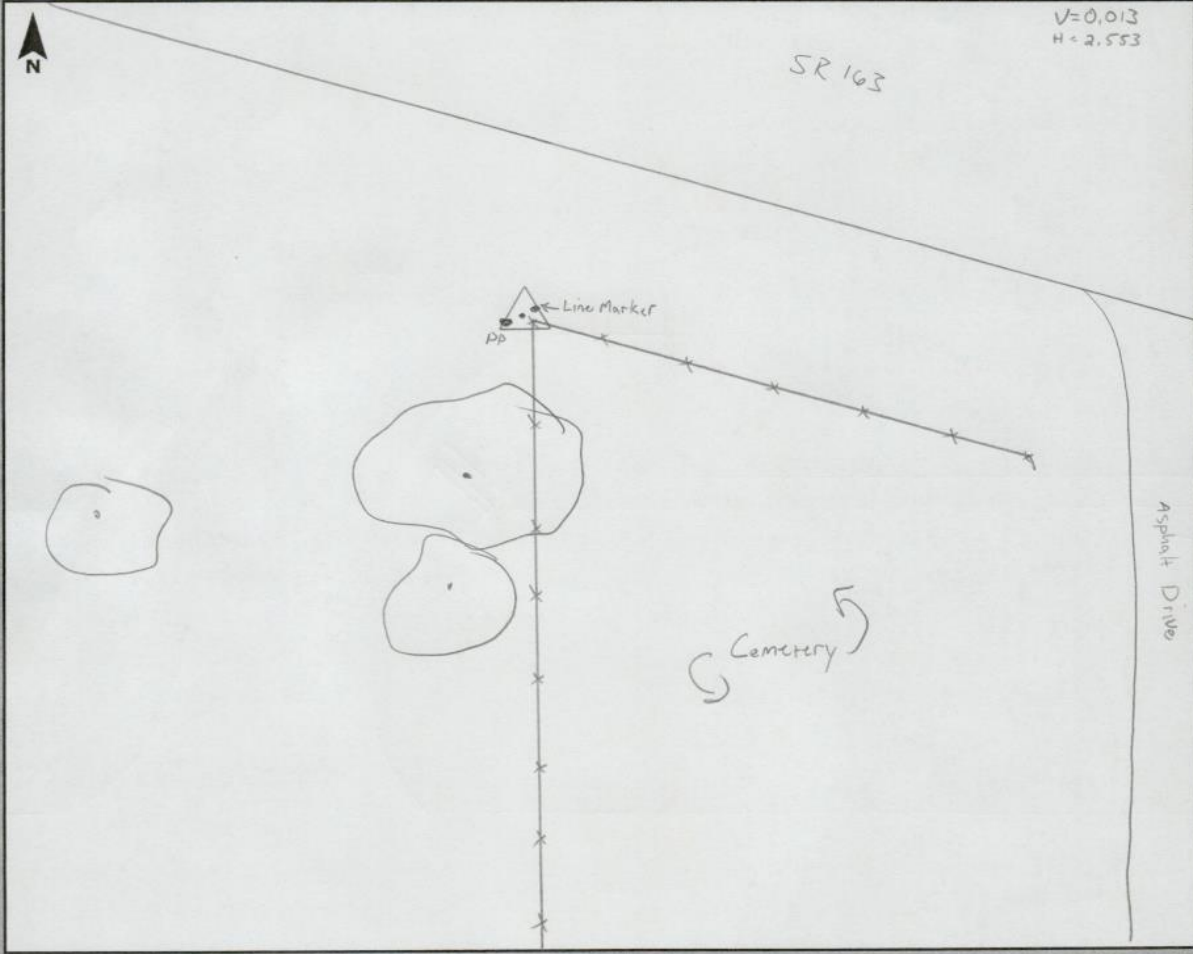


S 170, MC0532, 3W, 06MAY2016



## GPS Observation Log Sheet

Project Name: <u>Maumee Lidar 2016</u>	Project Number: <u>76327</u>	Survey Date: <u>5/26/17</u>
Station Name: <u>U 317</u>	Operator Name: <u>Ron Siney</u>	
Latitude: <u>41°31'53.00"</u>	Julian Day: <u>147</u>	Session No. <u>4</u>
Longitude: <u>82°47'14.37"</u>	Start Time: <u>4:39</u>	End Time: <u>4:42</u>
Ellip. Height: <u>484.895 ft</u>	Data File Name: <u>MAUMEE_LIDAR_RAS</u>	
Type of Mark: <u>Deep Road</u>	Type of Receiver: <u>Trimble R10</u>	
Stamping on Mark: <u>U 317 1980</u>	Type of Antenna: <u>Trimble Internal</u>	
Weather Condition: <u>Sunny 80's</u>	Antenna Height: <u>2.0 m</u>	to bottom of antenna mount





U 317, MC0981, 1, 26MAY2016



U 317, MC0981, 3N, 26MAY2016



U 317, MC0981, 2, 26MAY2016



U 317, MC0981, 3S, 26MAY2016



U 317, MC0981, 3E, 26MAY2016



U 317, MC0981, 3W, 26MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<b>Project Name:</b> <u>Maumee-Lidar-2016</u> <b>Station Name:</b> <u>YORSAN</u> <b>Latitude:</b> <u>41° 17' 33.05"</u> <b>Longitude:</b> <u>82° 54' 21.15"</u> <b>Ellip. Height:</b> <u>635,490 sf</u> <b>Type of Mark:</b> <u>Deep Road.</u> <b>Stamping on Mark:</b> <u>Yorsan 1995</u> <b>Weather Condition:</b> <u>Sunny 80s</u>	<b>Project Number:</b> <u>76327</u> <b>Survey Date:</b> <u>5/24/16</u> <b>Operator Name:</b> <u>Ron Siney</u> <b>Julian Day:</b> <u>145</u> <b>Session No.</b> <u>1</u> <b>Start Time:</b> <u>11:29</u> <b>End Time:</b> <u>1:33</u> <b>Data File Name:</b> <u>MAUMEE-LIDAR-RAS</u> <b>Type of Receiver:</b> <u>Trimble R10</u> <b>Type of Antenna:</b> <u>Trimble Internal</u> <b>Antenna Height:</b> <u>2.0m</u> to bottom of antenna mount	





YORSAN, AB6124, 1, CBN, 24MAY2016



YORSAN, AB6124, 3N, CBN, 24MAY2016



YORSAN, AB6124, 2, CBN, 24MAY2016



YORSAN, AB6124, 3S, CBN, 24MAY2016



YORSAN, AB6124, 3E, CBN, 24MAY2016





YORSAN, AB6124, 3W, CBN, 24MAY2016

## Woolpert Base Stations

GPS Station Recovery - GPS Log Sheet				 <b>WOOLPERT</b>																
Project Name: <u>MAUMEE LIDAR</u>		Operator Name: <u>Rick Webb</u>		Job No. <u>76327</u>																
Station Name: <u>BARNES MC0622</u>		Date of Survey: <u>11-May-16</u> Julian Day <u>132</u>																		
WGS 84 Coordinates:		File Name: <u>76327_132_RW</u>		Session # <u>43511320</u>																
Latitude <u>41 20 30.84953</u>		Type of Receiver: <u>R-8</u>																		
Longitude <u>083 58 48.13014</u>		Type of Antenna: <u>INTERNAL</u>																		
Ellip. Height <u>689.26</u>		<div style="display: flex; justify-content: space-between;"> <span>Circle one:</span> <span>Circle one:</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Antenna Height: <u>2.25</u></span> <span>USFT      ARP</span> </div> <div style="display: flex; justify-content: space-between;"> <span>Meters</span> <span>Phase Center</span> </div>																		
Type of Mark: <u>DISK IN CONC</u>		Start Time (local): <u>6:49</u>																		
Stamping on Mark: <u>BARNES 1963</u>		Weather Condition: <u>55°F</u> <u>FOG</u>																		
To-Reach Description:		Witness Ties:																		
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>				Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																		
1)																				
2)																				
3)																				
4)																				
Sketch:																				
<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>North ↑</p> <p>FARM FIELD</p> <p>Co Rd M</p> <p>DITCH</p> <p>GRASS</p> </div> <div style="width: 45%;"> <p>Co Rd L</p> <p>GRASS</p> <p>2 5TH FRAME</p> <p>CULVERT</p> <p>DITCH</p> <p>FARM FIELD</p> <p>Co Rd L</p> <p>STOP SIGN</p> <p>WITNESS POST</p> </div> </div>																				



GPS Station Recovery - GPS Log Sheet				
Project Name: <u>MAUMEE LIDAR</u>		Operator Name: <u>Rick Webb</u>		Job No. <u>76327</u>
Station Name: <u>BARNES MC0622</u>		Date of Survey: <u>12-May-16</u> Julian Day <u>133</u>		
WGS 84 Coordinates:		File Name: <u>76327_133_RW</u> Session # <u>      </u>		
Latitude	<u>41 20 30.85103</u>	Type of Receiver: <u>R-10</u>		
Longitude	<u>83 58 48.12691</u>	Type of Antenna: <u>INTERNAL</u>		
Ellip. Height	<u>564.826</u>	Antenna Height: <u>2.00M</u>		
Type of Mark: <u>DISK IN CONC</u>		<div style="display: flex; justify-content: space-between;"> <span>Circle one: USFT Meters</span> <span>Circle one: ARP Phase Center</span> </div>		
Stamping on Mark: <u>BARNES 1963</u>		Start Time (local) : <u>                    </u>		
		Weather Condition: <u>                    </u>		
To-Reach Description:		Witness Ties:		
		Reference Object		
		Distance		
		Azimuth		
		1)		
		2)		
		3)		
		4)		
Sketch:				
<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 10px;">  North         </div> <div style="flex-grow: 1;"></div> </div>				





BARNES, MC0622, 1, 11MAY2016



BARNES, MC0622, 3N, 11MAY2016



BARNES, MC0622, 2, 11MAY2016



BARNES, MC0622, 3S, 11MAY2016



BARNES, MC0622, 3E, 11MAY2016





BARNES, MC0622, 3W, 11MAY2016

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>															
Project Name:	<u>MAUMEE LIDAR</u> <u>Sandusky Co. Ohio</u>	Operator Name	<u>Rick Webb</u> Job No. <u>76327</u>															
Station Name:	<u>C 351 MC1678</u>	Date of Survey:	<u>6-May-16</u> Julian Day <u>127</u>															
WGS 84 Coordinates:		File Name:	<u>76327_127_RW 43511270</u> Session # <u>43511270</u>															
Latitude	<u>41°23'08.51548"</u>	Type of Receiver:	<u><del>R-40</del> R-3</u>															
Longitude	<u>83°38'45.62067"</u>	Type of Antenna:	<u>INTERNAL</u>															
Ellip. Height	<u>557.05</u>	Antenna Height:	<u><del>2.00</del> 2.25</u>															
Type of Mark:	<u>HURZ &amp; VERT</u>	<div style="display: flex; justify-content: space-between;"> <span>Circle one:</span> <span>Circle one:</span> </div> <div style="display: flex; justify-content: space-around;"> <span>USFT</span> <span>ARP</span> </div> <div style="display: flex; justify-content: space-around;"> <span><u>Meters</u></span> <span>Phase Center</span> </div>																
Stamping on Mark:	<u>C 351 1993</u>	Start Time (local) :	<u>06:33</u>															
Weather Condition:																		
To-Reach Description:		Witness Ties:																
Sketch:		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Reference Object</th> <th style="width: 15%;">Distance</th> <th style="width: 15%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>		Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																
1)																		
2)																		
3)																		
4)																		
<div style="display: flex;"> <div style="flex: 1;"> </div> <div style="flex: 1; border-left: 1px solid black; padding-left: 10px;"> <p style="text-align: center;">North</p> <p style="text-align: center;">ODOT OFFICE</p> <p style="text-align: center;">PARKING</p> <p style="text-align: center;">POE Rd</p> </div> </div>																		

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>														
<b>Project Name:</b> <u>MAUMEE LIDAR</u>	<b>Operator Name</b> <u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b> <u>C 351 M61678</u>	<b>Date of Survey:</b> <u>09 MAY 2016</u>	<b>Julian Day</b> <u>130</u>															
<b>WGS 84 Coordinates:</b>	<b>File Name:</b> <u>76327-130-RW</u>	<b>Session #</b> <u>43511346</u>															
<b>Latitude</b> <u>41°23'08.51"</u>	<b>Type of Reciever:</b> <u>R40 R-3</u>																
<b>Longitude</b> <u>83°38'45.62"</u>	<b>Type of Antenna:</b> <u>INTERNAL</u>																
<b>Ellip. Height</b> <u>557.05'</u>	<b>Antenna Height:</b> <u>2.25</u>																
<b>Type of Mark:</b> <u>HORZ &amp; VERT</u>	<div style="display: flex; justify-content: space-between;"> <div> <b>Circle one:</b> <u>Meters</u> </div> <div> <b>Circle one:</b> <u>USFT</u> <u>ARP</u>  <b>Phase Center</b> </div> </div>																
<b>Stamping on Mark:</b> <u>C 351 1993</u>	<b>Start Time (local) :</b> <u>0805 - 1733</u> <b>Weather Condition:</b> <u>50°F OVERCAST</u>																
<b>To-Reach Description:</b>	<b>Witness Ties:</b>																
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 70%;">Reference Object</th> <th style="width: 15%;">Distance</th> <th style="width: 15%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth															
1)																	
2)																	
3)																	
4)																	
<b>Sketch:</b> <div style="border: 1px solid black; height: 300px; margin-top: 10px; position: relative;"> <div style="position: absolute; top: 10px; left: 10px;">   North </div> </div>																	



GPS Station Recovery - GPS Log Sheet			 WOOLPERT																
<b>Project Name:</b>	<u>MAUMEE LIDAR</u>	<b>Operator Name</b>	<u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b>	<u>C 351 1678</u>	<b>Date of Survey:</b>	<u>10 MAY 2016</u>	<b>Julian Day</b> <u>171</u>															
<b>WGS 84 Coordinates:</b>		<b>File Name:</b>	<u>76327-131-RW</u> <b>Session #</b> _____																
<b>Latitude</b>	<u>41° 23' 08.51"</u>	<b>Type of Receiver:</b>	<u>R-10</u>																
<b>Longitude</b>	<u>83° 38' 48.62"</u>	<b>Type of Antenna:</b>	<u>INTERNAL</u>																
<b>Ellip. Height</b>	<u>559.151'</u>	<b>Antenna Height:</b>	<u>2.0</u> <del>2.25</del>	<div style="display: flex; justify-content: space-between;"> <span>Circle one: <u>USFT</u></span> <span>Circle one: <u>ARP</u></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Meters</span> <span>Phase Center</span> </div>															
<b>Type of Mark:</b>	<u>STAINLESS STEEL ROD</u>																		
<b>Stamping on Mark:</b>	<u>C 351 1993</u>	<b>Start Time (local) :</b>	_____																
		<b>Weather Condition:</b>	<u>59°F OVERCAST</u>																
<b>To-Reach Description:</b>		<b>Witness Ties:</b>																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
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		2)																	
		3)																	
4)																			
<b>Sketch:</b>																			
<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 20px;">  North                         </div> <div style="flex-grow: 1;"></div> </div>																			

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
<b>Project Name:</b>	<u>MAUMEE LIDAR</u>	<b>Operator Name</b>	<u>Rick Webb</u>	<b>Job No.</b> <u>76327</u>															
<b>Station Name:</b>	<u>C 351 ML1678</u>	<b>Date of Survey:</b>	<u>11-May-16</u> Julian Day <u>132</u>																
<b>WGS 84 Coordinates:</b>	<u>(1995)</u>	<b>File Name:</b>	<u>76327-132-RW</u> Session # _____																
<b>Latitude</b>	<u>41° 23' 08.51410</u>	<b>Type of Receiver:</b>	<u>R-10</u>																
<b>Longitude</b>	<u>83° 38' 45.62374</u>	<b>Type of Antenna:</b>	<u>INTERNAL</u>																
<b>Ellip. Height</b>	<u>559.12'</u>	<b>Antenna Height:</b>	<u>2.00</u>	<div style="display: flex; justify-content: space-between;"> <span>Circle one: <u>USFT</u></span> <span>Circle one: <u>ARP</u></span> </div> <div style="display: flex; justify-content: space-between;"> <span>Meters</span> <span>Phase Center</span> </div>															
<b>Type of Mark:</b>	<u>STAINLESS STEEL ROD</u>																		
<b>Stamping on Mark:</b>	<u>C 351 R93</u>																		
<b>To-Reach Description:</b>		<b>Witness Ties:</b>																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
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		1)																	
		2)																	
		3)																	
4)																			
<b>Sketch:</b>																			
<div style="display: flex; align-items: flex-start;"> <div style="text-align: center; margin-right: 20px;">               North           </div> <div style="flex-grow: 1;"></div> </div>																			



C 351, MC1678, 1, FBN, 06MAY2016



C 351, MC1678, 3N, FBN, 06MAY2016



C 351, MC1678, 2, FBN, 06MAY2016



C 351, MC1678, 3S, FBN, 06MAY2016



C 351, MC1678, 3E, FBN, 06MAY2016



C 351, MC1678, 3W, FBN, 06MAY2016

GPS Station Recovery - GPS Log Sheet			 <b>WOOLPERT</b>																
Project Name: <u>MAUMEE LIDAR</u>	Operator Name: <u>Rick Webb</u>	Job No. <u>76327</u>																	
Station Name: <u>E 182 (M0734)</u>	Date of Survey: <u>5-10-2016</u>	Julian Day <u>131</u>																	
WGS 84 Coordinates:	File Name: <u>76327-131-RW</u>	Session # <u>43511312</u>																	
Latitude: <u>41 41 37.56</u>	Type of Receiver: <u>R-3</u>																		
Longitude: <u>83 31 36.97</u>	Type of Antenna: <u>INTERNAL</u>																		
Ellip. Height: <u>472.58'</u>	<div style="display: flex; justify-content: space-between;"> <span>Antenna Height: <u>2.25</u></span> <div> <div style="display: flex; justify-content: space-between;"> <span>Circle one:</span> <span>Circle one:</span> </div> <div style="display: flex; justify-content: space-between;"> <span>USFT</span> <span>ARP</span> </div> <div style="display: flex; justify-content: space-between;"> <span><u>Meters</u></span> <span>Phase Center</span> </div> </div> </div>																		
Type of Mark: <u>DISK IN CONC</u>	Start Time (local): <u>0649</u>																		
Stamping on Mark: <u>E 182 1954</u>	Weather Condition: <u>54°F OVERCAST</u>																		
To-Reach Description:		Witness Ties:																	
		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 60%;">Reference Object</th> <th style="width: 20%;">Distance</th> <th style="width: 20%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																	
1)																			
2)																			
3)																			
4)																			
<div style="border: 1px solid black; padding: 10px;"> <p><b>Sketch:</b></p> </div>																			





E 182, MC0734, 1, 10MAY2016



E 182, MC0734, 3N, 10MAY2016



E 182, MC0734, 2, 10MAY2016



E 182, MC0734, 3S, 10MAY2016



E 182, MC0734, 3E, 10MAY2016



E 182, MC0734, 3W, 10MAY2016



GPS Station Recovery - GPS Log Sheet				 <b>WOOLPERT</b>														
Project Name: <u>MAUMEE LIDAR</u>	Operator Name: <u>Rick Webb</u>	Job No. <u>76327</u>																
Station Name: <u>HENRY 2 MC1753</u>	Date of Survey: <u>12-May-16</u> Julian Day <u>133</u>																	
WGS 84 Coordinates:	File Name: <u>76327_133_RW</u> Session # <u>4351330</u>																	
Latitude <u>41 25 21.53571</u>	Type of Receiver: <u>R-8</u>																	
Longitude <u>83 52 58.92233</u>	Type of Antenna: <u>INTERNAL</u>																	
Ellip. Height <u>542.66</u>	<div style="display: flex; justify-content: space-between;"> <span>Antenna Height: <u>2.25m</u></span> <div>             Circle one: <u>USFT</u>    Circle one: <u>ARP</u>              Meters                      Phase Center           </div> </div>																	
Type of Mark: <u>DISK IN CONC</u>	Start Time (local): <u>6:33</u>																	
Stamping on Mark: <u>HENRY 2 1993</u>	Weather Condition: <u>64F OVERCAST</u>																	
To-Reach Description:	Witness Ties: <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <thead> <tr> <th style="width: 70%;">Reference Object</th> <th style="width: 15%;">Distance</th> <th style="width: 15%;">Azimuth</th> </tr> </thead> <tbody> <tr><td>1)</td><td></td><td></td></tr> <tr><td>2)</td><td></td><td></td></tr> <tr><td>3)</td><td></td><td></td></tr> <tr><td>4)</td><td></td><td></td></tr> </tbody> </table>			Reference Object	Distance	Azimuth	1)			2)			3)			4)		
Reference Object	Distance	Azimuth																
1)																		
2)																		
3)																		
4)																		
Sketch: <div style="border: 1px solid black; height: 250px; position: relative; margin-top: 10px;"> <div style="position: absolute; top: 10px; left: 10px;">               North           </div> <div style="position: absolute; top: 100px; left: 100px; font-family: cursive;">             GRASS           </div> <div style="position: absolute; top: 150px; left: 300px; font-family: cursive;">             GRASS           </div> <div style="position: absolute; top: 200px; left: 450px; font-family: cursive;">             GRASS           </div> <div style="position: absolute; top: 250px; left: 500px; font-family: cursive;">             GRASS           </div> <div style="position: absolute; top: 150px; left: 550px; font-family: cursive;">             GRASS FIELD ENT           </div> <div style="position: absolute; top: 120px; left: 600px; font-family: cursive;">             RCP CULVERT           </div> <div style="position: absolute; top: 200px; left: 700px; font-family: cursive;">             PLOWED FIELD           </div> <div style="position: absolute; top: 100px; left: 500px; font-family: cursive; transform: rotate(-90deg);">             HENRY - LUCAS County Rd           </div> </div>																		



HENRY 2, MC1753, 1, 12MAY2016



HENRY 2, MC1753, 3N, 12MAY2016



HENRY 2, MC1753, 2, 12MAY2016



HENRY 2, MC1753, 3S, 12MAY2016



HENRY 2, MC1753, 3E, 12MAY2016

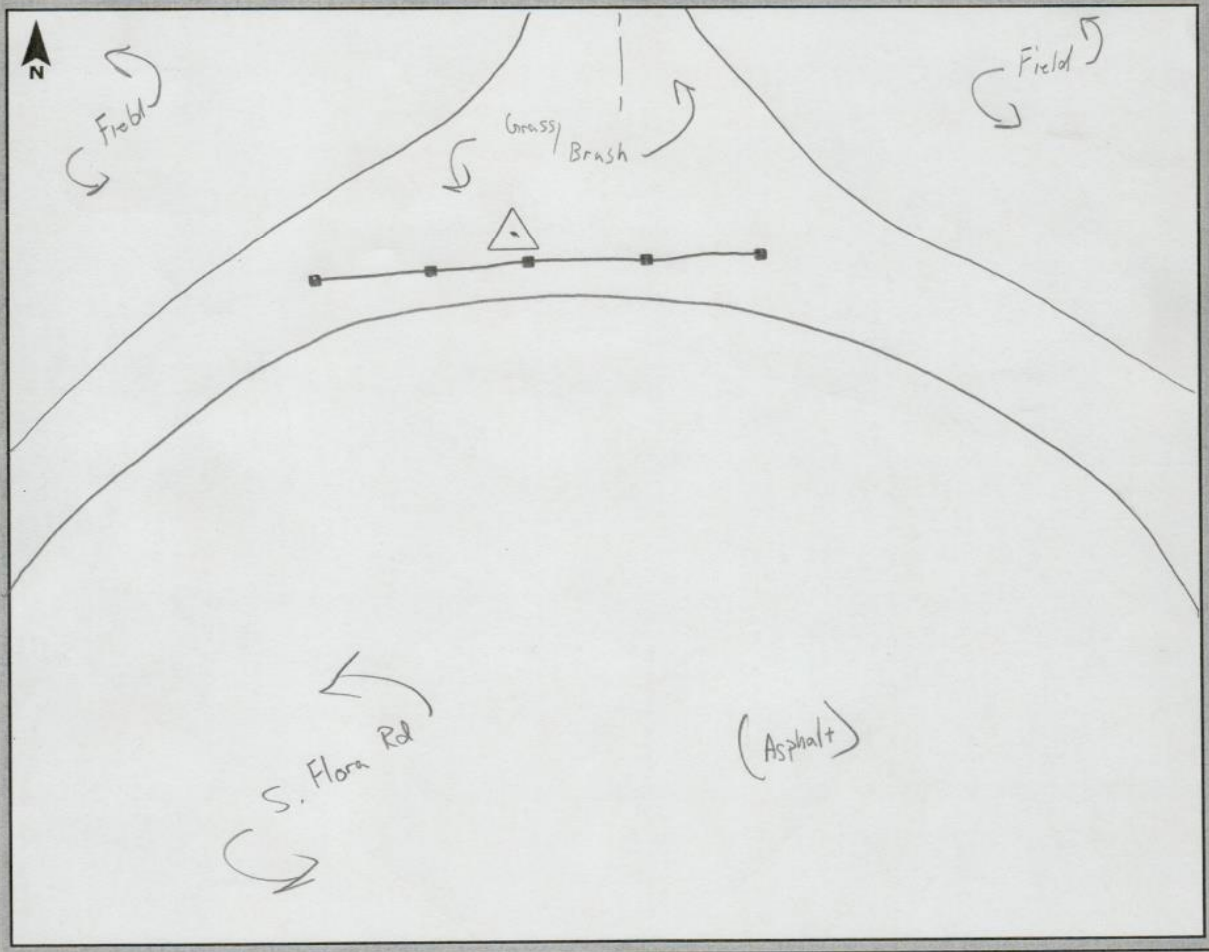


HENRY 2, MC1753, 3W, 12MAY2016



## GPS Observation Log Sheet

Project Name: <u>Maumee LiDAR 2016</u>	Project Number: <u>70327</u>	Survey Date: <u>5/24/16</u>
Station Name: <u>S24 A</u>	Operator Name: <u>Ron Siney</u>	
Latitude: <u>41° 17' 44.59"</u>	Julian Day: <u>145</u>	Session No. <u>1</u>
Longitude: <u>83° 01' 58.35"</u>	Start Time: <u>11:39</u>	End Time: <u>6:09</u>
Ellip. Height: <u>538.9145 ft</u>	Data File Name: <u>06101450</u>	
Type of Mark: <u>Deep Road (PACS)</u>	Type of Receiver: <u>Trimble R2 model 3</u>	
Stamping on Mark: <u>S24 A 2009</u>	Type of Antenna: <u>Trimble Internal</u>	
Weather Condition: <u>Sunny 80's</u>	Antenna Height: <u>2.1 m</u>	to bottom of antenna mount



## GPS Observation Log Sheet

Project Name: <u>Maumee Lidar 2016</u>	Project Number: <u>76327</u>	Survey Date: <u>5/25/16</u>
Station Name: <u>S 24 A</u>	Operator Name: <u>Ron Siny</u>	
Latitude: <u>41° 17' 44.60"</u>	Julian Day: <u>146</u>	Session No. <u>4</u>
Longitude: <u>83° 01' 58.30"</u>	Start Time: <u>3:40</u>	End Time: <u>3:43</u>
Ellip. Height: <u>541.681sf</u>	Data File Name: <u>MAUMEE_LIDAR_RAS</u>	
Type of Mark: <u>Dead Rod</u>	Type of Receiver: <u>Trimble R10</u>	
Stamping on Mark: <u>S 24-A 2009</u>	Type of Antenna: <u>Trimble Internal</u>	
Weather Condition: <u>Cloudy 70s</u>	Antenna Height: <u>2.0 m</u>	to bottom of antenna mount



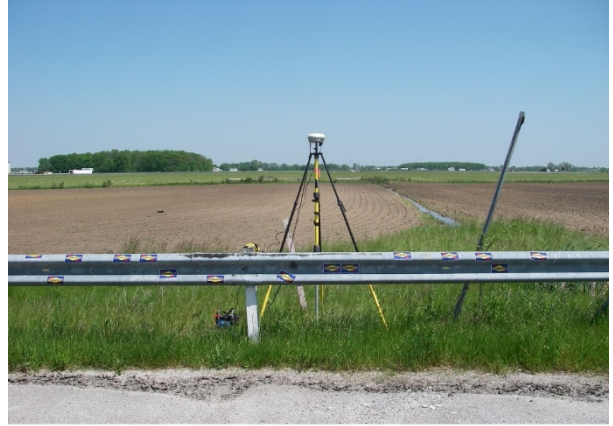
See Previous Sketch

$u = 0.117$   
 $v = 0.191$





S24 A, DL6925, 1, PACS, 24MAY2016



S24 A, DL6925, 3N, PACS, 24MAY2016



S24 A, DL6925, 2, PACS, 24MAY2016



S24 A, DL6925, 3S, PACS, 24MAY2016



S24 A, DL6925, 3E, PACS, 24MAY2016



S24 A, DL6925, 3W, PACS, 24MAY2016



## Woolpert Aeronautical Surveys - Observation Log Sheet

Station Designation <div style="text-align: center;">W 350</div>	Airport LID & State <div style="text-align: center;">OH</div>	Data File Name <div style="text-align: center;">W_350_52701410_To2</div>
---	--	---

Observer Full Name <div style="text-align: center;">Zach Leesemann</div>	Home Office <div style="text-align: center;">Dayton</div>
Observer email <div style="text-align: center;">zach.leesemann@woolpert.com</div>	
Observer Phone Office - 937 . 531 . 1211      Cell - 937 . 684 . 0558	

Start Time : 9 : 27 local	Stop Time : 14 : 53 local	Calendar Date <div style="text-align: center;">05/20/2016</div>
---------------------------------	---------------------------------	--

Station Classification <input type="radio"/> FBN <input checked="" type="radio"/> CBN <input type="radio"/> BM <input checked="" type="radio"/> PACS <input type="radio"/> SACS <input type="radio"/> TSM <input type="radio"/> EoR <input type="radio"/> NAVAID <input type="radio"/> Photo Control <input type="radio"/> Other:			
---	--	--	--

PID <div style="text-align: center;">MC1644</div>	SSN <div style="text-align: center;">—</div>	Station ID <div style="text-align: center;">W350</div>	Julian Day <div style="text-align: center;">141</div>
--	---	---	--

Latitude <div style="text-align: center;">N 41 ° 00 '45.5443"</div>	Longitude <div style="text-align: center;">W 83 ° 41 '03.0868"</div>
--	---

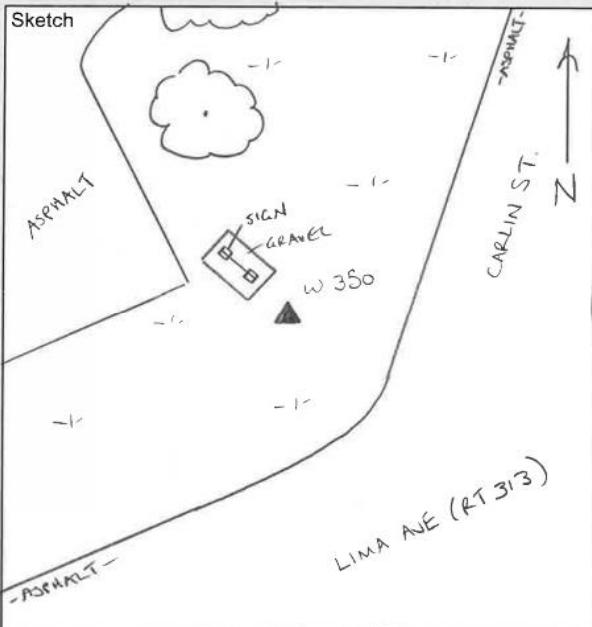
Antenna Ht. (before; include add. offsets) <div style="text-align: center;">2.000 m/ft</div>	E-Height <div style="text-align: center;">205.366 m/ft</div>
---	---

Ant. Ht. Measured To <input checked="" type="radio"/> Bottom of Ant. Mt. <input type="radio"/> Other:	Ground Plane <input type="radio"/> Yes <input checked="" type="radio"/> No
--	---

Tripod Type <input checked="" type="radio"/> Fixed-Ht. <input type="radio"/> Slip-leg <input type="radio"/> Fixed mount <input type="radio"/> Bi-pod			
---	--	--	--

Ant. plumb before session? <input checked="" type="radio"/> Yes <input type="radio"/> No	Ant. plumb after session? <input checked="" type="radio"/> Yes <input type="radio"/> No
---	--

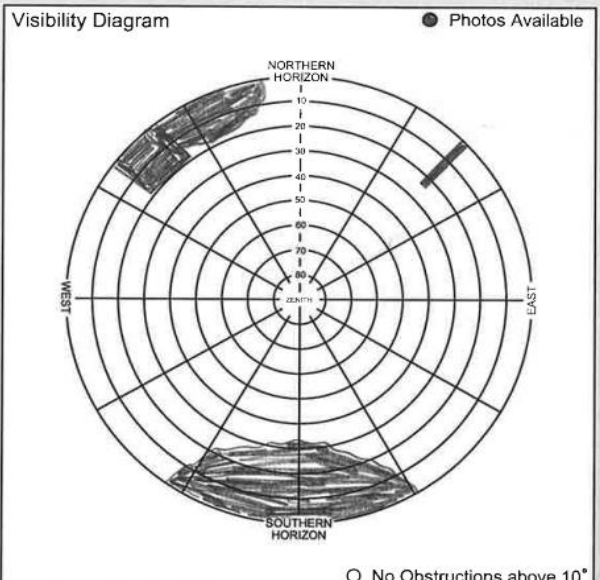
Receiver P/N 67250-66 S/N 5017425270	Antenna P/N R8-3 S/N Internal
--	-------------------------------------



Location Description / Comments

X

Setting Type <input checked="" type="radio"/> Deep Rod <input type="radio"/> Concrete Mon. <input type="radio"/> Fixed Mt.	Monument Size <div style="text-align: center;">≈ 8.5"</div>
Stamping <div style="text-align: center;">W 350 1993</div>	Inscription (i.e. NGS, Woolpt, etc.) <div style="text-align: center;">NGS</div>
Recovery Condition <input checked="" type="radio"/> Good <input type="radio"/> Poor <input type="radio"/> Disturbed <input type="radio"/> Destroyed <input type="radio"/> Set New <input type="radio"/> Other:	
Photo Ctrl Target Type <div style="text-align: center;">N/A</div>	

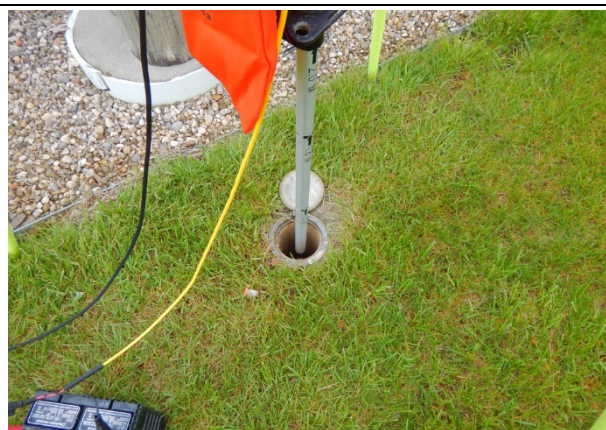




W 350, MC1644, 1, CBN, PACS, 04MAY2016



W 350, MC1644, 3N, CBN, PACS, 04MAY2016



W 350, MC1644, 2, CBN, PACS, 04MAY2016



W 350, MC1644, 3S, CBN, PACS, 04MAY2016



W 350, MC1644, 3E, CBN, PACS, 04MAY2016



W 350, MC1644, 3W, CBN, PACS, 04MAY2016



GPS Observation Log Sheet		 <b>WOOLPERT</b>
<p>Project Name: <u>Maumee Lidar 2016</u></p> <p>Station Name: <u>Y 316</u></p> <p>Latitude: <u>41° 31' 18.27"</u></p> <p>Longitude: <u>83° 07' 32.42'</u></p> <p>Ellip. Height: <u>463.460 sf</u></p> <p>Type of Mark: <u>Deep Rod</u></p> <p>Stamping on Mark: <u>Y 316 1980</u></p> <p>Weather Condition: <u>Sunny 70's</u></p>	<p>Project Number: <u>76327</u>      Survey Date: <u>5/25/16</u></p> <p>Operator Name: <u>Ron Siney</u></p> <p>Julian Day: <u>146</u>      Session No. <u>1</u></p> <p>Start Time: <u>6:52</u>      End Time: <u>6:27</u></p> <p>Data File Name: <u>06101460</u></p> <p>Type of Receiver: <u>Trimble R2 model 13</u></p> <p>Type of Antenna: <u>Trimble Internal</u></p> <p>Antenna Height: <u>2.1 m</u> to bottom of antenna mount</p>	

**N**

Gravel Drive

Barn →

↻ Grass

△

↻ Field

GPS Observation Log Sheet				 WOOLPERT	
Project Name:	Maumee Lidar 2016	Project Number:	76327	Survey Date:	5/26/16
Station Name:	Y 316	Operator Name:	Ron Siney		
Latitude:	41° 31' 18.27"	Julian Day:	147	Session No.	1
Longitude:	83° 07' 32.38"	Start Time:	6:51	End Time:	9:28
Ellip. Height:	468.265 sf	Data File Name:	06101470		
Type of Mark:	DecP Rod	Type of Receiver:	Trimble R8 model 3		
Stamping on Mark:	Y 316 1980	Type of Antenna:	Trimble Internal		
Weather Condition:	Overcast 70s	Antenna Height:	2.1 m	to bottom of antenna mount	

N

See Previous Sketch

GPS Observation Log Sheet			 <b>WOOLPERT</b>
<p>Project Name: <u>Maumee Lidar 2016</u></p> <p>Station Name: <u>Y 316</u></p> <p>Latitude: <u>41° 31' 18.22"</u></p> <p>Longitude: <u>83° 07' 32.35"</u></p> <p>Ellip. Height: <u>468.002 sft</u></p> <p>Type of Mark: <u>Deep Rod</u></p> <p>Stamping on Mark: <u>Y 316 1980</u></p> <p>Weather Condition: <u>Sunny 70s</u></p>	<p>Project Number: <u>76327</u>      Survey Date: <u>5/26/16</u></p> <p>Operator Name: <u>R. Sney</u></p> <p>Julian Day: <u>147</u>      Session No. <u>2</u></p> <p>Start Time: <u>10:51</u>      End Time: <u>10:54</u></p> <p>Data File Name: <u>MAUMEE_LIDAR_RAS</u></p> <p>Type of Receiver: <u>Trimble R10</u></p> <p>Type of Antenna: <u>Trimble Internal</u></p> <p>Antenna Height: <u>2.0 m</u> to bottom of antenna mount</p>		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="text-align: left;"> <p>See Previous Sketch</p> </div> <div style="text-align: right;"> <p>H = 0.079 V = 0.075</p> </div> </div>			





Y 316, MC1011, 1, 25MAY2016



Y 316, MC1011, 3N, 25MAY2016



Y 316, MC1011, 2, 25MAY2016



Y 316, MC1011, 3S, 25MAY2016



Y 316, MC1011, 3E, 25MAY2016



Y 316, MC1011, 3W, 25MAY2016

GPS Observation Log Sheet		 <b>WOOLPERT</b>
<p>Project Name: <u>Maumee Lidar 2016</u></p> <p>Station Name: <u>Z 317</u></p> <p>Latitude: <u>41° 32' 34.53"</u></p> <p>Longitude: <u>82° 43' 54.65"</u></p> <p>Ellip. Height: <u>465,507 sft</u></p> <p>Type of Mark: <u>Deep Rod</u></p> <p>Stamping on Mark: <u>Z 317 1980</u></p> <p>Weather Condition: <u>Sunny 70's</u></p>	<p>Project Number: <u>76327</u>    Survey Date: <u>5/26/16</u></p> <p>Operator Name: <u>Ron Siney</u></p> <p>Julian Day: <u>146</u>    Session No. <u>1</u></p> <p>Start Time: <u>8:55</u>    End Time: <u>8:58</u></p> <p>Data File Name: <u>MAUMEE LIDAR RAS</u></p> <p>Type of Receiver: <u>Trimble R10</u></p> <p>Type of Antenna: <u>Trimble Internal</u></p> <p>Antenna Height: <u>2.0 m</u> to bottom of antenna mount</p>	

N

H = 0.099  
V = 0.298

Sketch map showing:

- Brush (top left)
- Bldg (left)
- Asphalt Drive (center)
- Lake (top right, with arrow pointing to it)
- Coast Guard Bldg. (bottom right)
- Survey point marked with a triangle and 'X' along a vertical line.



GPS Observation Log Sheet		 WOOLPERT
Project Name: <u>Maumee Lidar 2016</u> Station Name: <u>Z 317</u> Latitude: <u>41° 32' 34.53"</u> Longitude: <u>82° 43' 54.65"</u> Ellip. Height: <u>465, 28154</u> Type of Mark: <u>Deep Road</u> Stamping on Mark: <u>Z 317 1980</u> Weather Condition: <u>Sunny 70's</u>	Project Number: <u>76327</u> Survey Date: <u>5/26/16</u> Operator Name: <u>Ron Siney</u> Julian Day: <u>147</u> Session No. <u>1</u> Start Time: <u>10:42</u> End Time: <u>5:24</u> Data File Name: <u>06101971</u> Type of Receiver: <u>Trimble R8 model 3</u> Type of Antenna: <u>Trimble External</u> Antenna Height: <u>2.1 m</u> to bottom of antenna mount	
<div style="display: flex; align-items: flex-start;"> <div style="margin-right: 20px;">  N           </div> <div>             See Previous Sketch           </div> </div>		

A photograph of a field site. A yellow tripod is set up on a grassy bank, holding a black camera. A wooden stake with a label is next to it. In the background, there is a body of water, a distant shoreline, and a wooden pier. The sky is overcast.

A surveying instrument, possibly a total station or GNSS receiver, is mounted on a yellow tripod. The tripod is positioned in a grassy area next to a concrete block wall. The instrument is pointing towards the right side of the frame. In the background, there are trees and a building with a white roof.

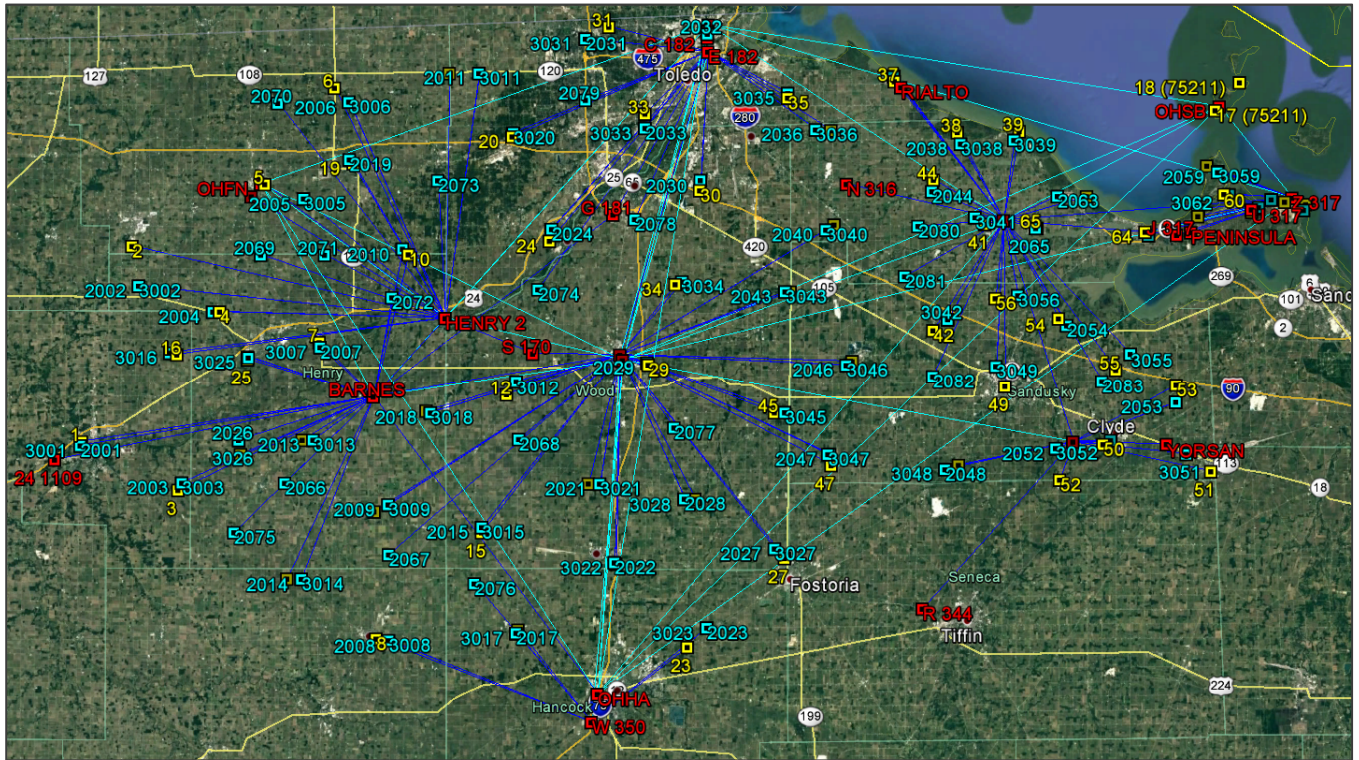




## Section 5: GPS Control Diagram

This section contains a graphical representation of the new and existing control stations used for the USGS Lower Maumee 2016 LiDAR Project. The diagram on the following page depicts the control stations used in the NAD83 (2011) adjustment.





**USGS LOWER MAUMEE 2016 LiDAR PROJECT  
TASK ORDER NUMBER: G16PC00022**

Horizontal Datum: NAD 83 (2011)  
Vertical Datum: NAVD 88  
Units: U.S. Survey Feet  
State Plane Zone: Ohio North  
Geoid Model: Geoid 12B  
Coordinate System: Grid  
Date: January 2017



- Geodetic Control and/or Geodetic Control Check
- LiDAR Control Stations
- LiDAR Quality Control Stations

**NOT TO SCALE**