

# Survey Project Proposal Report

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**Attn: Philippe Hensel, PhD  
PAB Branch Chief  
NOAA National Geodetic Survey  
N/NGS4 SSMC3 #8533  
1315 East-West Hwy  
Silver Springs, MD 20910**

**Project Number: ZHTV100117  
Replacement of Taxiway C  
WPAFB, Ohio**

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Location: Dayton, Ohio  
Work Type: Geodetic Leveling – 1<sup>st</sup> Order, Class II  
Project Begin Date: May 16, 2016  
Project End Date: September 1, 2016

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Dr. Philippe Hensel,

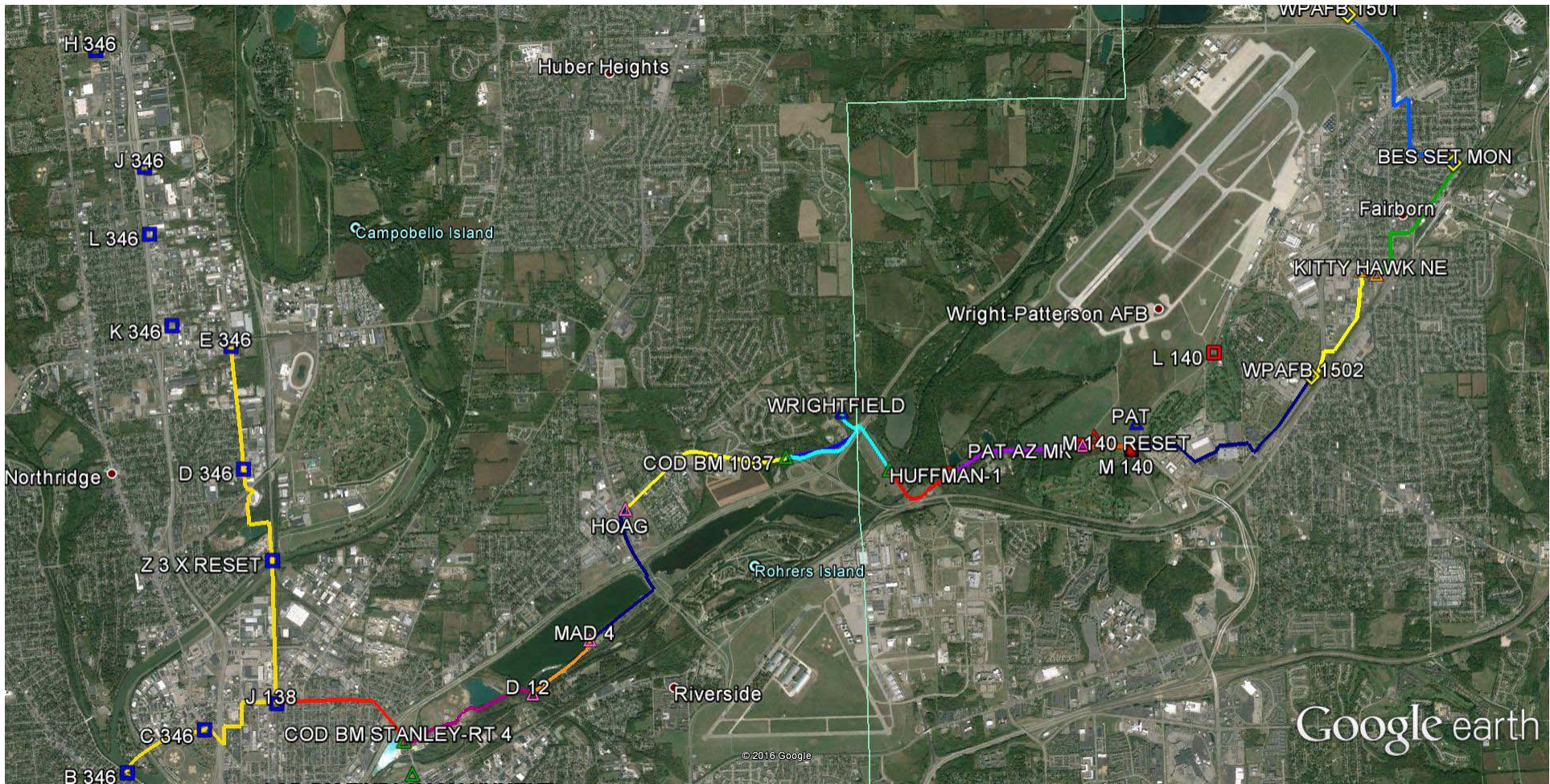
We have reviewed your notes from my first submission and after some field reconnaissance and research we are moving the level line north of state route 4. This will level out the terrain to be covered and allow access to some local county benchmarks which appear to be suitable for this leveling procedure. Any marks not currently in the NGS database will be written up and submitted for approval into the database. This will also allow the benchmark spacing requirements to be met as several of the benchmarks along the south side of state route 4 (south of the mad river) were unable to be recovered or were located in the side of an elevated railroad structure limiting safe access to the marks. In addition, the proposed control line can be better accessed with the new route. Below is a list of the field verified benchmarks to be used in this project as well as some additional marks for back-up, if required.

<b>PROJECT BENCHMARKS</b>				
<u>SSN</u>	<u>PID</u>	<u>DESIGNATION</u>	<u>RECONISSANCE</u>	<u>NOTES</u>
0010	JZ3668	K346	FIELD VERIFIED	
0020	JZ3667	E346	FIELD VERIFIED	
0030	JZ3666	D346	FIELD VERIFIED	
0040	JZ0056	Z3XRESET	FIELD VERIFIED	
0050	JZ0057	J138	FIELD VERIFIED	MONUMENT BROKEN MAY STILL HOLD ELEVATION
0060	JZ3665	C346	FIELD VERIFIED	
0070	JZ3664	B346	FIELD VERIFIED	
0080	N-A	COD BM STANLEY-RT 4	FIELD VERIFIED	MONTGOMERY COUNTY BENCHMARK – APPENDIX II
0090	AE3348	D12	FIELD VERIFIED	
0100	AE3346	MAD4	FIELD VERIFIED	
0110	DG7194	HOAG	FIELD VERIFIED	
0120	N-A	COD BM 1037	FIELD VERIFIED	MONTGOMERY COUNTY BENCHMARK – APPENDIX III
0130	JZ2904	WRIGHTFIELD	FIELD VERIFIED	USE ONLY IF ACCESS IS GRANTED – ACCESS GRANTED
0140	N-A	HUFFMAN-1	FIELD VERIFIED	MONTGOMERY COUNTY BENCHMARK – APPENDIX IV
0150	JZ0127	N140	FIELD VERIFIED	
0160	JZ0128	PAT AZ MK	FIELD VERIFIED	MARKED “PAT 1945”
0170	JZ3507	M140 RESET	FIELD VERIFIED	
0180	N-A	WPAFB 1502	NEW MARK	CONTRACT BENCHMARK TO BE SET
0190	BBBZ87	KITTYHAWK NE AZ MK	FIELD VERIFIED	
0200	BBBZ86	KITTYHAWK NE	FIELD VERIFIED	
0210	N-A	NEW BM	NEW MARK	ADDITIONAL BENCHMARK TO BE SET
0220	N-A	WPAFB1501	NEW MARK	CONTRACT BENCHMARK TO BE SET
<b>OTHER MARKS OF NOTE</b>				
0230	JZ3669	L346	FIELD VERIFIED	TO BE USED AS CHECK TIES IF REQUIRED
0240	JZ3670	J346	FIELD VERIFIED	TO BE USED AS CHECK TIES IF REQUIRED
0250	JZ3671	H346	NOT VERIFIED	TO BE USED AS CHECK TIES IF REQUIRED
0260	JZ3663	A346	FIELD VERIFIED	TO BE USED AS CHECK TIES IF REQUIRED
0270	JZ3662	G346	FIELD VERIFIED	TO BE USED AS CHECK TIES IF REQUIRED
0280	JZ2907	PAT NEW AAF	NOT VERIFIED	TO BE USED IF JZ0128 IS DESTROYED
0290	JZ2918	PAT	NOT VERIFIED	USE LAST RESORT – APPEARS LOCATION IS ON GUN RANGE
0300	N-A	NEW BM	NOT VERIFIED	TO BE SET IF JZ3507 IS DESTROYED
0310	JZ2709	L140 RESET	NOT FOUND	(GOLF COURSE RECENTLY REGRADED)

As stated above the new route meets benchmark spacing requirements with the use of some county benchmarks. I have provided Montgomery County's (OH) Data Sheets for these benchmarks and propose they be used to fill in gaps between NGS documented benchmarks. The proposed route's statistics are provided below:

<b>PROPOSED LEVEL ROUTE</b>				
SECTION	BEGIN MARK SSN	END MARK SSN	APPROX DISTANCE	NOTES
CHECK-TIE_1	0070	0060	0.67 MI (1.07KM)	CHECK TIE FOR ❶ JZ3664 AND ❷ JZ3665
CHECK-TIE_2	0060	0050	0.91 MI (1.46KM)	CHECK TIE BETWEEN JZ3665 AND ❸ JZ0057
SECTION_1	0050	0080	1.1 MI (1.77KM)	
SECTION_2	0080	0090	1.1 MI (1.77KM)	
SECTION_3	0090	0100	0.58 MI (0.93KM)	
SECTION_4	0100	0110	1.23 MI (1.98KM)	
SECTION_5	0110	0120	1.33 MI (2.14KM)	
SECTION_6	0120	0140	0.98 MI (1.58KM)	
SECTION_6A	0120	0130	0.83 MI (1.33KM)	SUBSTITUTE 6 FOR 6A & 6B IF ACCESS PROVIDED TO JZ2904
SECTION_6B	0130	0140	0.58 MI (0.93KM)	SUBSTITUTE 6 FOR 6A & 6B IF ACCESS PROVIDED TO JZ2904
SECTION_7	0140	0150	0.62 MI (1.0KM)	
SECTION_8	0150	0160	1.0 MI (1.6KM)	
SECTION_9	0160	0170	0.37 MI (.59KM)	
SECTION_10	0170	0180	1.72 MI (2.76KM)	LONGEST RUN
SECTION_11	0180	0190	0.96 MI (1.54KM)	
SECTION_12	0190	0200	0.11 MI (0.18KM)	
SECTION_13	0200	0210	1.16 MI (1.86KM)	
SECTION_14	0210	0220	1.65 MI (2.65KM)	
SECTION_15	0220	0210	1.65 MI (2.65KM)	
SECTION_16	0210	0200	1.16 MI (1.86KM)	
SECTION_17	0200	0190	.011 MI (0.18KM)	
SECTION_18	0190	0180	0.96 MI (1.54KM)	
SECTION_19	0180	0170	1.72 MI (2.76KM)	LONGEST RUN
SECTION_20	0170	0160	0.37 MI (.59KM)	
SECTION_21	0160	0150	1.0 MI (1.6KM)	
SECTION_22	0150	0140	0.62 MI (1.0KM)	
SECTION_23	0140	0120	0.98 MI (1.58KM)	
SECTION_23A	0140	0130	0.58 MI (0.93KM)	SUBSTITUTE 23 FOR 23A & 23B IF ACCESS PROVIDED TO JZ2904
SECTION_23B	0130	0120	0.83 MI (1.33KM)	SUBSTITUTE 23 FOR 23A & 23B IF ACCESS PROVIDED TO JZ2904
SECTION_24	0120	0110	1.33 MI (2.14KM)	
SECTION_25	0110	0100	1.23 MI (1.98KM)	
SECTION_26	0100	0090	0.58 MI (0.93KM)	
SECTION_27	0090	0080	1.1 MI (1.77KM)	
SECTION_28	0080	0050	1.1 MI (1.77KM)	
CHECK-TIE_3	0050	0040	1.0 MI (1.6KM)	CHECK TIE BETWEEN JZ0057 AND ❹ JZ0056
CHECK-TIE_4	0040	0030	0.89 MI (1.43KM)	CHECK TIE BETWEEN JZ0056 AND ❺ JZ3666
CHECK-TIE_5	0030	0020	0.88 MI (1.41KM)	CHECK TIE BETWEEN JZ3666 AND ❻ JZ3667
TOTAL DISTANCE =			32.01 MI (51.52KM)	DOES DOT INCLUDE SECTION 6A,6B,23A,AND23B
AVERAGE SECTION=			0.97 MI (1.56KM)	DOES DOT INCLUDE SECTION 6A,6B,23A,AND23B

**APPENDIX I – Google Route Map**



Google earth



**APPENDIX II – City of Dayton Benchmark – Stanley Rt 4**

MONTGOMERY COUNTY HORIZONTAL AND VERTICAL BENCHMARK CONTROL

	<b>COD BM STANLEY -</b>	<u>MAP INDEX</u>	<b>790</b>
<u>POINT NAME</u>	<u>RT 4</u>	<u>NGS PID #</u>	<u>N/A</u>
<u>HORIZONTAL ORDER</u>	MCE GPS DERIVED		
<u>OHIO STATE PLANE GRID COORDINATES ( NAD83-1995)</u>			
	<u>NORTHING</u>	<u>EASTING</u>	
	651560.78	1501710.67	
<u>LATITUDE</u>	39°46'37.66371"N	<u>LONGITUDE</u>	84°09'39.27340"W
<u>VERTICAL ORDER</u>	MCE GPS DERIVED		
<u>NGS PUBLISHED NAVD 88 ELEV</u>	<u>N/A</u>		
<u>AVERAGE MCE GPS ELEV</u>	<b>756.36</b>		
<u>MCE SITE DERIVED GPS ELEV #1</u>	756.36	<u>MCE SITE DERIVED GPS ELEV #2</u>	756.36
<u>NGVD 29 ELEV -- USGS</u>	757.04 (VERTCON)	<u>PRE 29 ADJUSTMENT ELEV ( LOCAL SOURCE )</u>	<u>N/A</u>
<b><u>MCE NAVD 88 ELEV DERIVED BY THE USE OF VERTICALLY CALIBRATED SITE:</u></b>			
MCE VRS CALIBRATION 2007 ( GEOID 2003 )			
<b><u>INFORMATION-DESCRIPTION</u></b>			
<p>ON THE WEST SIDE OF STANLEY ST NEAR THE NORTHBOUND ON RAMP TO SR 4 93' EAST OF DOUBLE WIDE GATE LEADING TO CITY OF DAYTONS LIME POND. 18' WEST OF THE BACK OF CURB FOR STANLEY ST. 4' WEST OF BACK OF WALK NORTH OF DRIVE APPROACH LEADING TO LIME POND NORTH OF THE FINDLAY ST BRIDGE.</p> <p>UN-NAMED CITY OF DAYTON MONUMENT</p> <p>MCE ASSIGNED NAME IS COD STANLEY-RT 4</p> <p>BRASS DISK SET IN TOP OF 18" ROUND CONCRETE MONUMENT.</p>			
<b><u>DISCLAIMER:</u></b>			
<p>This document is used by the Montgomery County Engineer's Office for the evaluation of the integrity and definition of the location of described monument or reference.</p> <p>Public or private use of this information is at the user's discretion and the Montgomery County Engineer's office and the employees of the office is not liable or responsible for any misfortune, injuries, death or damage caused by the use of this information.</p>			

**City of Dayton Benchmark – STANLEY - RT 4**





**APPENDIX III – City of Dayton Benchmark 1037**

MONTGOMERY COUNTY HORIZONTAL AND VERTICAL BENCHMARK CONTROL

	<u>MAP INDEX</u>	<b>780</b>
<u>POINT NAME</u>	<b>COD BM 1037</b>	<u>NGS PID #</u>
		<b>N/A</b>
<u>HORIZONTAL ORDER</u>	<b>APPROX LOW ACCURACY</b>	
<u>OHIO STATE PLANE GRID COORDINATES ( NAD83-1995)</u>		
	<u>NORTHING</u>	<u>EASTING</u>
	660451.63	1517300.15
<u>LATITUDE</u>	39°48'08.30536"N	<u>LONGITUDE</u>
		84°06'21.65027"W
<u>VERTICAL ORDER</u>	<b>MCE GPS DERIVED</b>	
<u>NGS PUBLISHED NAVD 88 ELEV</u>	<b>N/A</b>	
<u>AVERAGE MCE GPS ELEV</u>	<b>793.13</b>	
<u>MCE SITE DERIVED GPS ELEV #1</u>	<u>MCE SITE DERIVED GPS ELEV #2</u>	
793.16	793.10	
<u>NGVD 29 ELEV -- USGS</u>	<u>PRE 29 ADJUSTMENT ELEV ( LOCAL SOURCE )</u>	
793.82 (VERTCON)	N/A	
<b><u>MCE NAVD 88 ELEV DERIVED BY THE USE OF VERTICALLY CALIBRATED SITE:</u></b>		
REFERENCED/LEVELED		
<b><u>INFORMATION-DESCRIPTION</u></b>		
<p>ON THE NORTHWEST CORNER OF VALLEY ST AND OLD VALLEY ST. JUST WEST OF THE START OF SR 444 AND SR 4 INTERCHANGE. 18.0' SOUTHWEST OF A STOP SIGN. 31.7' NORTH OF THE CENTER OF VALLEY ST. 47.0' WEST OF OLD VALLEY ST.</p> <p>CITY OF DAYTON BENCHMARK # 1037</p> <p>BRASS DISK SET IN TOP OF CONCRETE.</p> <p>POOR GPS CONDITION EXSIST REFERENCED WITH A MAG SPK SET ON THE NORTH EDGE OF PAVEMENT OF VALLEY ST SR 444. 211.83' NORTHEAST FROM THE BENCHMARK. AT THE END OF THE GARDRAIL THAT IS JUST SOUTHWEST OF THE NORTH BOUND OFF RAMP FROM RT 4 TO VALLEY ST. SEE MAP INDEX 780 REF NOTES.</p>		
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**City of Dayton Benchmark - 1037**



**APPENDIX IV – Montgomery County Benchmark Huffman-1**

MONTGOMERY COUNTY HORIZONTAL AND VERTICAL BENCHMARK CONTROL

		<u>MAP INDEX</u>	<b>CONS 9</b>
<u>POINT NAME</u>	<b>HUFFMAN -1</b>	<u>NGS PID #</u>	<u>N/A</u>
<u>HORIZONTAL ORDER</u>	STATIC GPS BY MCD		
<u>OHIO STATE PLANE GRID COORDINATES ( NAD83-1995)</u>			
	<u>NORTHING</u>	<u>EASTING</u>	
	659518.20	1521152.82	
<u>LATITUDE</u>	39°47'59.75593"N	<u>LONGITUDE</u>	84°05'32.08175"W
<u>VERTICAL ORDER</u>	STATIC GPS BY MCD		
<u>CONSERVANCY NAVD 88 ELEV</u>	849.24		
<u>AVERAGE MCE GPS ELEV</u>	849.13		
<u>MCE SITE DERIVED GPS ELEV #1</u>	849.13	<u>MCE SITE DERIVED GPS ELEV #2</u>	NO REDUNACY CHK
<u>NGVD 29 ELEV -- USGS</u>	<u>PRE 29 ADJUSTMENT ELEV ( LOCAL SOURCE )</u>		
849.94 ( VERTCON)	N/A		
<b><u>MCE NAVD 88 ELEV DERIVED BY THE USE OF VERTICALLY CALIBRATED SITE:</u></b>			
MCE VRS CALIBRATION 2007 ( GEOID 2003 )			
<b><u>INFORMATION-DESCRIPTION</u></b>			
<p>AT HUFFMAN DAM. ON THE CENTERLINE OF OF ROAD ON TOP APPROX 0.20 MILE NORTH OF SPILLWAY BRIDGE. IN A MONUMENT BOX. THE MARK IS A CITY OF DAYTON WATER MONUMENT STAMPED MAD-1</p> <p>MIAMI CONSERVANCY MONUMENT KNOWN AS HUFFMAN - 2 IT IS A BRASS DISK SET IN CONCRETE STAMPED MAD-1</p> <p>MCE VERIFIED ACCURACY OF STATION USING VRS-GPS AND APPLYING MCE WHOLE COUNTY VERTICAL CALIBRATION OF 2007. ONLY ONE SHOT WAS TAKEN AND MCE DEEMED NO REDUNACY NEEDED DUE TO CHECKING INTO MCD HORIZONTALS VALUES WELL AND BEING ONLY 0.11' LOWER VERTICAL OF MCD CALL.</p> <p>MCD VALUES ARE SHOWN ON THIS REPORT AND WERE ESTABLISHED BY CANTER SURVEYING &amp; MAPPING IN DECEMBER 1998.</p>			
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Montgomery County Benchmark Huffman-1

