

**TECHNICAL MEMORANDUM:**

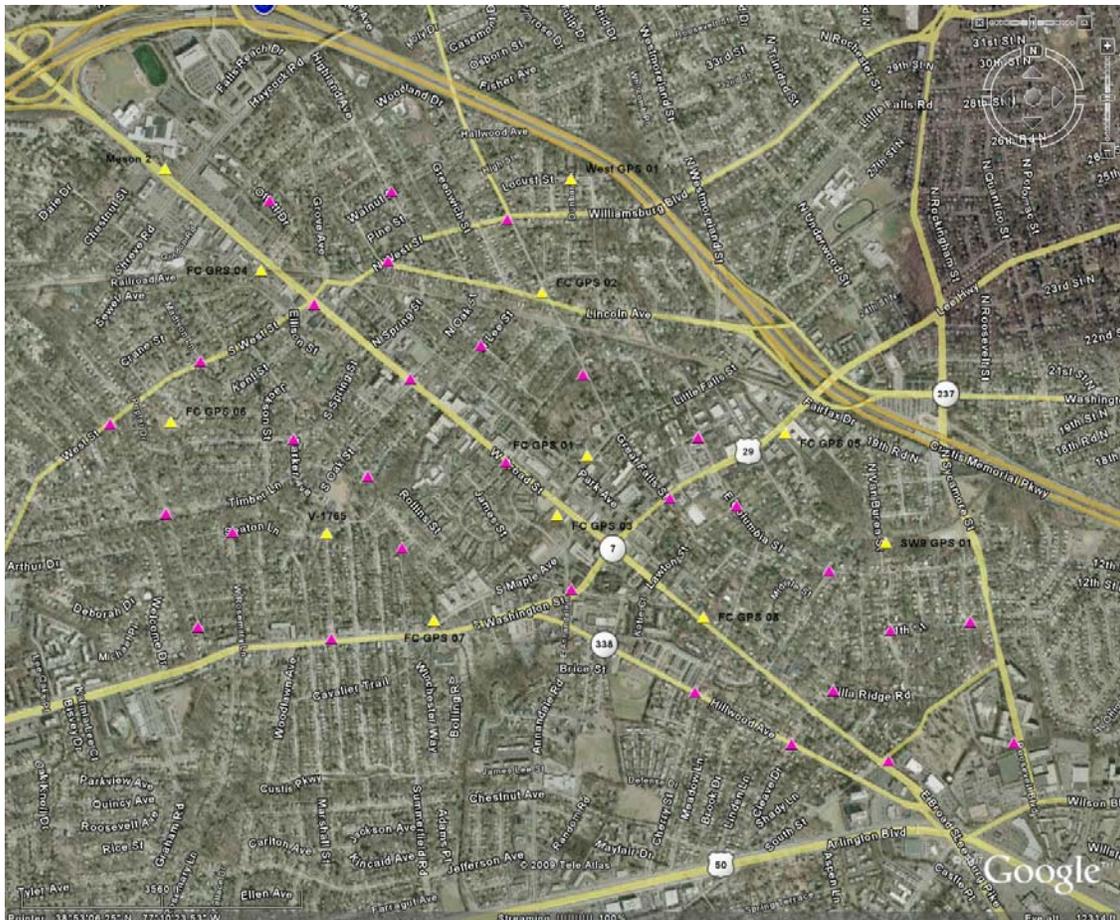
---

# City of Falls Church Monumentation and Densification Project

City of Falls Church, Virginia

## Survey Control and Quality Report

JANUARY 2011



## Project Summary:

Name project: **City of Falls Church GPS Monumentation**

Location: City of Falls Church

Contact: Jason Widstrom, PE

Telephone: 703-248-5080

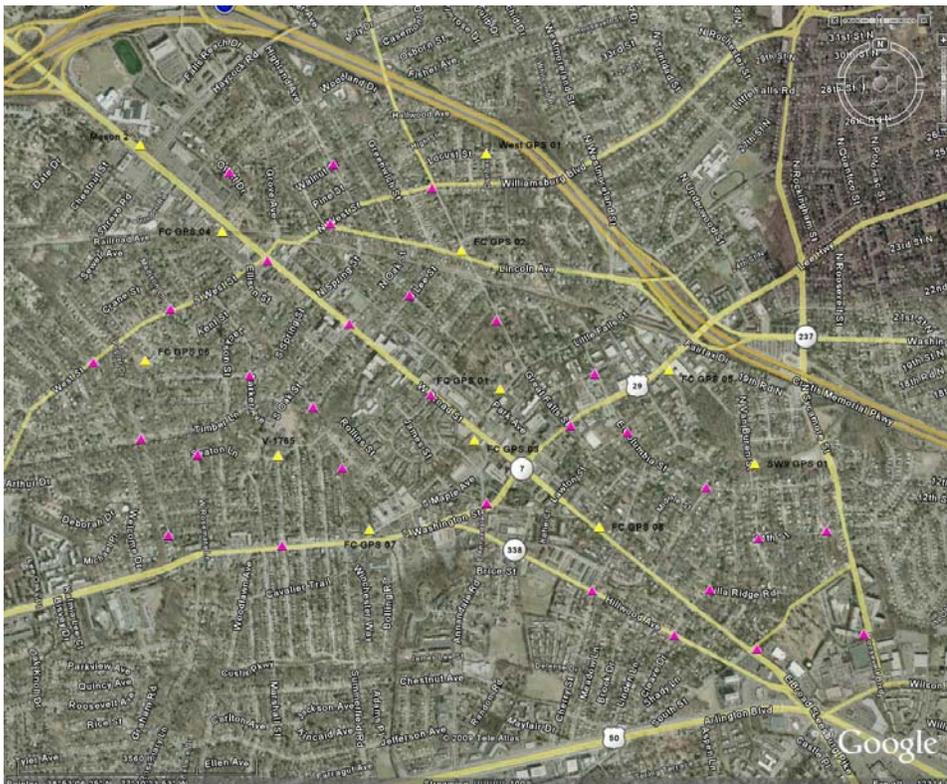
Job number: 01090073

KCI Project Manager: Joseph H. Allegra

KCI Technologies, Inc. will densify the existing GPS control to facilitate the anticipated growth of the control system positions within the City of Falls Church geospatial system. The area that this project encompasses is 4km east west by 3km north south.

## Objective:

KCI Surveys performed GPS and Leveling services for the City of Falls Church. KCI will establish 30 new monuments in accordance with Blue Book procedures by National Geodetic Surveys. KCI attained FGCS Class C – First order GPS positional tolerances and RT-1 classification. This method is a modified approach that integrates the NGS Guidelines for Real Time v 2.0.04 specifications and conventional GPS specifications published by NGS. KCI performed FGCS Third order specifications level with a Leica digital level following NGS guidelines.



## **FALLS CHURCH – EXISTING STATIONS**

- 1) CORS Control Stations
  - a. AF9522 – GAIT – CORS
  - b. DI1659 – LOYD – CORS
  - c. DH3635 – LOY5 – CORS
  - d. DH7960 – LOYB – CORS
- 2) Legacy Stations
  - a. HV4861 – POWHATAN – 0,THIRD
  - b. HV8560 – MASON 2 – 0,THIRD
  - c. HV9516 – V 1765 – 0,THIRD
  - d. HV9517 – THIRD VERT
- 3) Existing Fall Church Stations
  - a. AA2664 – FC GPS 01 – 0,THIRD
  - b. AA2665 – FC GPS 02 – 0,THIRD
  - c. AA2666 – FC GPS 03 – 0,THIRD
  - d. AA2667 – FC GPS 04 – 0,THIRD
  - e. AA2668 – FC GPS 05 – 0,THIRD
  - f. AA2669 – FC GPS 06 – 0,THIRD
  - g. AA2670 – FC GPS 07 – 0,THIRD
  - h. AA2671 – FC GPS 08 – 0,THIRD
  - i. AA2672 – FC GPS 09 – 0,THIRD

## **New Stations**

Stations FC1 – FC30 – Bernstein 24” FENO monument system with brass cap.

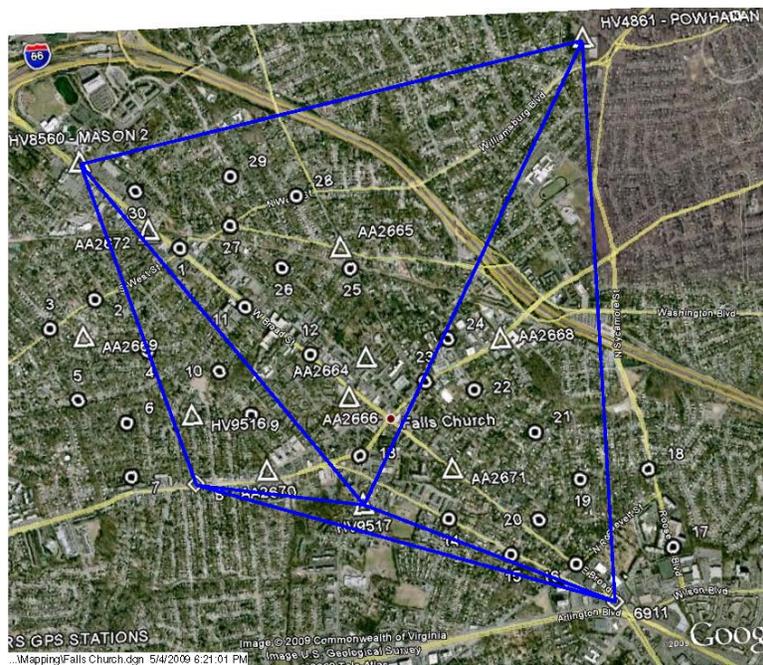
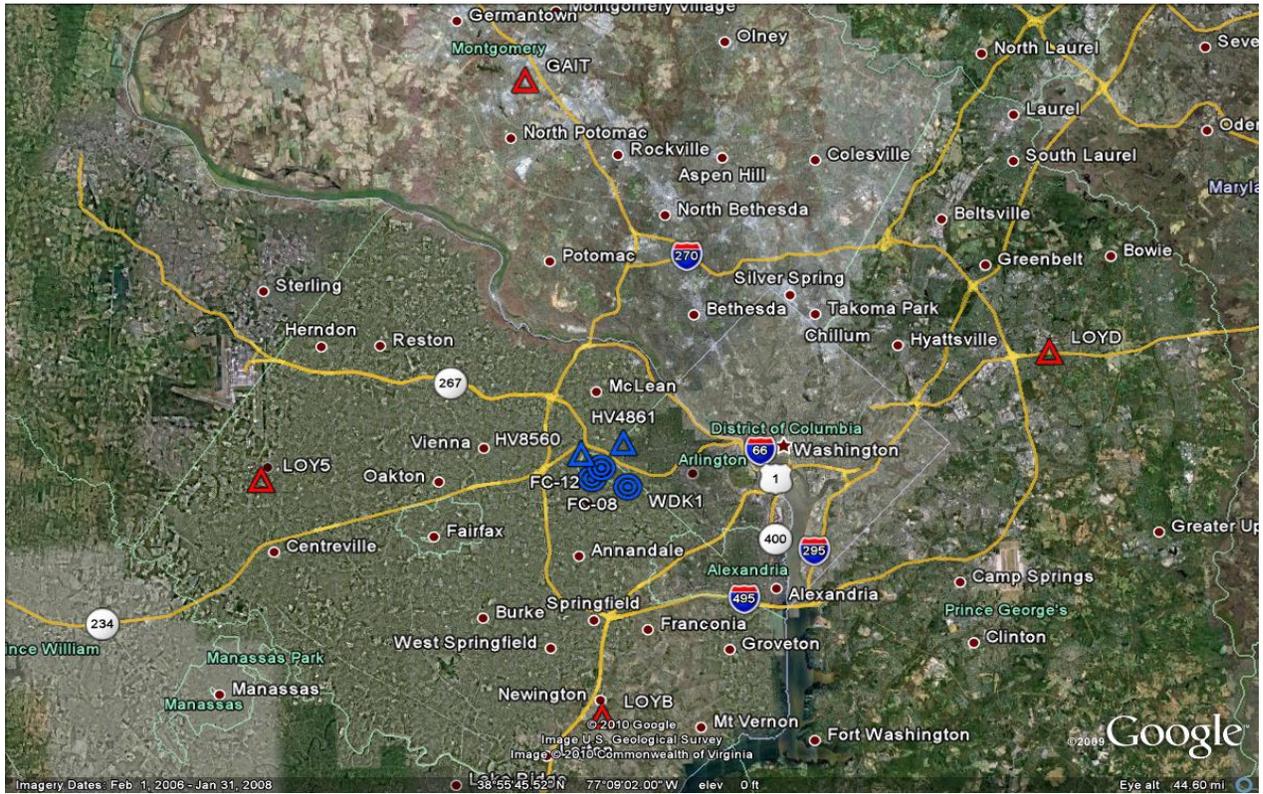


## Observations and Equipment

- 1) Equipment – Ashtech / MagellanGPS full wave 12 channel L1/L2 receivers and antennas with current antenna calibrations and models in the NGS database.
  - a. Note: two receivers will be used for the RTN Sessions and 5 receivers will be used for static ties.
  - b. Adjusted, tribrachs or fixed height tripods will be utilized with heights being measured before and after the observations and in feet and meters.
  
- 2) Observations – static and real-time
  - a. Static – HV4861, HV8560, HV9516 and HV9517 will be utilized to position new primary fiduciary stations FC 08 and FC 12 and WDK1 which are new stations.
    - i. 4 CORS stations will reference the new and existing stations
    - ii. 4 1 hour sessions will be performed each with a 2 hr time offset
  - b. real time
    - i. Stations HV4861, FC08, FC12 and WDK1 primary stations
    - ii. Ties to all new stations and existing stations will be observed from each base with 20min observation
    - iii. CORS ties will connect the primary stations
  
- 3) Adjustment and submission
  - a. Appropriate files will be submitted including but not limited to b,g, rinex and adjust files.
  
- 4) Differential leveling
  - a. Leica Digital level and non-invar bar rod will be utilized
  - b. NGS leveling procedure will be followed to attain 3<sup>rd</sup> order leveling
  - c. All stations existing and proposed with the exception of the CORS stations will be leveled.



# Static CORS Ties



## Results for Static Control Ties

### Adjustment Statistical Summary

=====

```

Iterations                =      3
Number of Stations        =      9
Number of Observations   =     318
Number of Unknowns       =      31
Number of Redundant Obs  =     287
    
```

Observation	Count	Sum Squares of StdRes	Error Factor
Coordinates	12	8.316	0.876
GPS Deltas	306	211.523	0.875
<b>Total</b>	<b>318</b>	<b>219.839</b>	<b>0.875</b>

Warning: The Chi-Square Test at 5.00% Level Exceeded Lower Bound  
Lower/Upper Bounds (0.918/1.082)

### Station changes from published

#### Adjusted Station Information

=====

Coordinate Changes from Entered Provisionals (FeetUS)  
(Elevations Marked with (\*) are Ellipsoid Heights)

Station	dN	dE	dZ
4861	0.011288	0.037175	-0.074806
8560	0.172980	0.029070	-0.015692
GAIT	0.008309	-0.004298	-0.004387*
LOY5	-0.002084	-0.006989	0.005996*
LOYB	0.008464	0.016018	-0.005390*
LOYD	-0.014689	-0.004731	0.003781*

#### Datum Transformations

			StdDev
Scale Factor	0.999999908838	:	0.091162 PPM 0.0654 (Solved)
Rotation Around North Axis		:	0.047290 Sec 0.0248 (Solved)
Rotation Around East Axis		:	-0.036377 Sec 0.0259 (Solved)
Rotation Around Vert Axis		:	-0.045107 Sec 0.0136 (Solved)



Error Propagation

=====

Station Coordinate Standard Deviations (FeetUS)

Station	N	E	Elev
4861	0.006290	0.006028	0.009074
8560	0.006998	0.006770	0.011719
FC08	0.006174	0.005885	0.008737
FC12	0.006179	0.005951	0.008866
GAIT	0.007380	0.007330	0.009329
LOY5	0.007387	0.007278	0.008871
LOYB	0.007083	0.007035	0.009064
LOYD	0.007981	0.007952	0.009462
WDK1	0.006201	0.005943	0.008837

Station Coordinate Error Ellipses (FeetUS)

Confidence Region = 95%

Station	Semi-Major Axis	Semi-Minor Axis	Azimuth of Major Axis	Elev
4861	0.015396	0.014753	177-52	0.017785
8560	0.017152	0.016549	10-52	0.022969
FC08	0.015137	0.014380	169-29	0.017125
FC12	0.015138	0.014551	171-11	0.017376
GAIT	0.018064	0.017942	3-25	0.018285
LOY5	0.018089	0.017807	170-01	0.017387
LOYB	0.017349	0.017206	162-51	0.017765
LOYD	0.019535	0.019464	177-51	0.018545
WDK1	0.015186	0.014541	173-54	0.017320

Positional Tolerance Check (FeetUS)

Allowable Tolerance = 0.0328 + 10 PPM

Tolerance Check Confidence Region = 95%

Listing Failures Only

Stations From	To	Horizontal Distance	Semi-Major-Axis Actual	Allowed	Ratio Actual/Allowed
---------------	----	---------------------	------------------------	---------	----------------------



## Final Static Control Ties Positions

### Adjusted Coordinates (FeetUS)

Station	N	E	Elev	Description
4861	7014074.915107	11864739.619837	451.997781	NGS HV4861
8560	7011799.225786	11855496.936503	401.203978	NGS HV8560
FC08	7005877.024377	11857642.557150	328.398186	
FC12	7008281.857020	11859765.398663	326.280123	
GAIT	7098560.863581	11845721.253820	461.482382	NGS CORS(ARP)
LOY5	7007700.908001	11785701.563660	325.541543	LOYOLA(ARP)
LOYB	6950986.284038	11858335.307353	100.460604	LOYOLA(ARP)
LOYD	7032585.048919	11957953.553780	190.034143	LOYOLA(ARP)
WDK1	7003732.847083	11865361.140593	401.319309	

### Adjusted Positions and Ellipsoid Heights (FeetUS)

Station	Latitude	Longitude	Ellip Ht	Geoid Ht
4861	38-54-04.65971620	77-09-29.85350771	347.516160	-104.481621
8560	38-53-43.48673557	77-11-27.16998114	296.831251	-104.372726
FC08	38-52-44.65063265	77-11-01.10745032	223.914551	-104.483635
FC12	38-53-08.11736876	77-10-33.82653051	221.798250	-104.481873
GAIT	39-08-02.34054270	77-13-15.51889307	357.422720	-104.059662
LOY5	38-53-11.89555021	77-26-10.53581869	221.160409	-104.381134
LOYB	38-43-42.02230139	77-11-02.29835635	-5.070997	-105.531601
LOYD	38-56-52.48490568	76-49-46.65068326	83.576448	-106.457695
WDK1	38-52-22.35319455	77-09-23.90655538	296.688892	-104.630417
			Average:	-104.764485

### Convergence Angles (DMS) and Grid Factors at Stations

(Grid Azimuth = Geodetic Azimuth - Convergence)

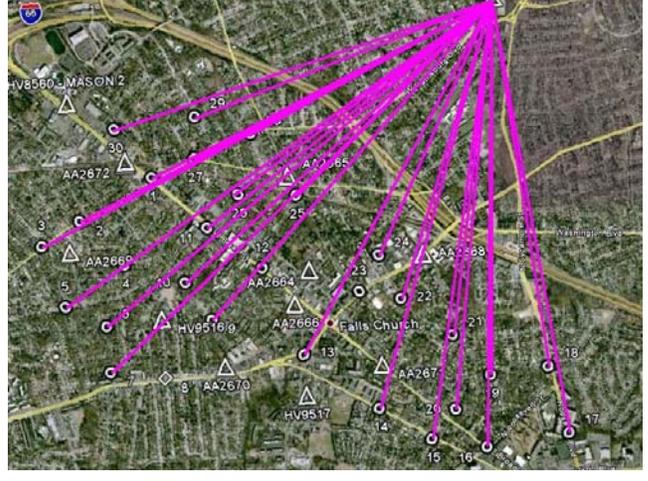
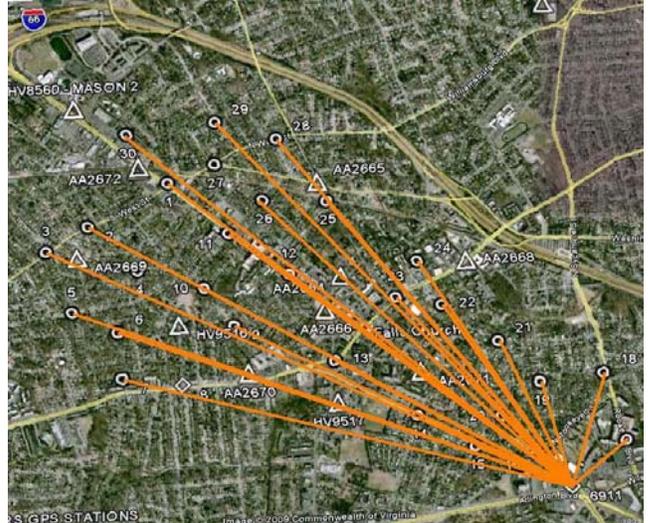
(Elevation Factor Includes a Geoid Height Correction at Each Station))

Station	Convergence		----- Factors -----		
	Angle	Scale	x	Elevation	= Combined
4861	0-50-14.58	0.99996062		0.99998338	0.99994400
8560	0-49-01.36	0.99996012		0.99998580	0.99994592
FC08	0-49-17.63	0.99995878		0.99998929	0.99994807
FC12	0-49-34.65	0.99995930		0.99998939	0.99994870
GAIT	0-47-53.74	0.99998895		0.99998291	0.99997186
LOY5	0-39-50.04	0.99995939		0.99998942	0.99994881
LOYB	0-49-16.88	0.99995025	1.00000024		0.99995049
LOYD	1-02-33.04	0.99996497		0.99999600	0.99996098
WDK1	0-50-18.29	0.99995829		0.99998581	0.99994410
Project Averages:	0-49-46.69	0.99996230		0.99998914	0.99995144

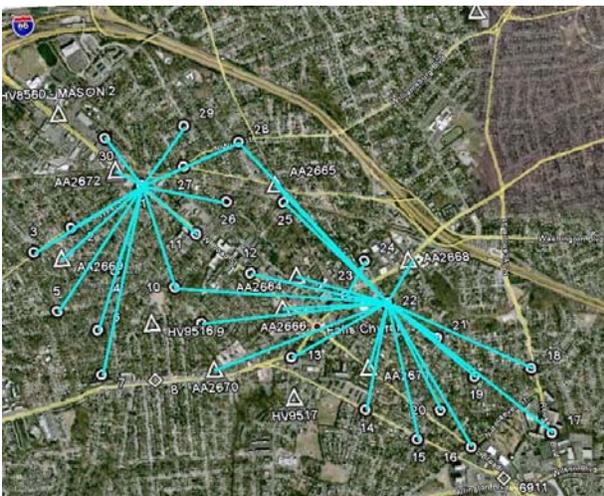




## Rapid-Static Ties:



## Quality Control Ties:



Final Adjustment values as follows:

Adjustment Statistical Summary

=====

Iterations = 2  
Number of Stations = 35  
Number of Observations = 387  
Number of Unknowns = 97  
Number of Redundant Obs = 290

Observation	Count	Sum Squares of StdRes	Error Factor
GPS Deltas	387	270.177	0.965
Total	387	270.177	0.965

The Chi-Square Test at 5.00% Level Passed  
Lower/Upper Bounds (0.919/1.081)

Adjusted Station Information

=====

Coordinate Changes from Entered Provisionals (FeetUS)

Station	dN	dE	dZ
4861	0.000000	0.000000	0.000000
FC08	0.000000	0.000000	0.000000
FC12	0.000000	0.000000	0.000000
WDK1	0.000000	0.000000	0.000000

Adjusted Observations and Residuals

=====

Adjusted GPS Vector Observations (FeetUS)

Datum Transformations			StdDev
Scale Factor 1.000001174450	:	-1.174450 PPM	1.1709 (Solved)
Rotation Around North Axis	:	1.579522 Sec	0.4158 (Solved)
Rotation Around East Axis	:	-1.687432 Sec	0.3513 (Solved)
Rotation Around Vert Axis	:	0.418838 Sec	0.2421 (Solved)



Error Propagation

=====

Station Coordinate Standard Deviations (FeetUS)

Station	N	E	Elev
2664	0.069786	0.069798	0.071935
2667	0.070313	0.070065	0.073501
4861	0.000000	0.000000	0.000000
9517	0.042279	0.042464	0.047509
FC01	0.040961	0.040833	0.042954
FC02	0.036088	0.035866	0.040308
FC03	0.035330	0.033849	0.042974
FC04	0.035850	0.035617	0.039580
FC05	0.036166	0.036096	0.041657
FC06	0.037091	0.036833	0.043979
FC07	0.036669	0.036176	0.040777
FC08	0.000000	0.000000	0.000000
FC09	0.036229	0.035705	0.039622
FC10	0.035501	0.035311	0.037998
FC11	0.036059	0.035976	0.040781
FC12	0.000000	0.000000	0.000000
FC13	0.035130	0.035059	0.036225
FC14	0.037346	0.037382	0.052969
FC15	0.035287	0.035261	0.037587
FC16	0.036602	0.036417	0.045712
FC17	0.035610	0.035521	0.037532
FC18	0.035688	0.035443	0.037836
FC19	0.040657	0.038462	0.044357
FC20	0.037363	0.035919	0.040595
FC21	0.035745	0.035385	0.038195
FC22	0.041741	0.041210	0.048495
FC23	0.035767	0.035373	0.038570
FC24	0.044893	0.043747	0.063503
FC25	0.031857	0.031534	0.033555
FC26	0.035777	0.035340	0.037971
FC27	0.029583	0.029153	0.032663
FC28	0.037341	0.036322	0.043241
FC29	0.035849	0.035720	0.039809
FC30	0.038400	0.038124	0.052021
WDK1	0.000000	0.000000	0.000000



Station Coordinate Error Ellipses (FeetUS)  
Confidence Region = 95%

Station	Semi-Major Axis	Semi-Minor Axis	Azimuth of Major Axis	Elev
2664	0.170937	0.170730	49-01	0.140990
2667	0.172192	0.171417	19-19	0.144060
4861	0.000000	0.000000	0-00	0.000000
9517	0.105248	0.102160	49-13	0.093117
FC01	0.100263	0.099950	0-12	0.084188
FC02	0.088413	0.087713	160-28	0.079002
FC03	0.086956	0.082354	160-59	0.084229
FC04	0.087752	0.087181	177-46	0.077575
FC05	0.088986	0.087890	139-28	0.081646
FC06	0.091201	0.089741	32-10	0.086198
FC07	0.089788	0.088519	8-57	0.079922
FC08	0.000000	0.000000	0-00	0.000000
FC09	0.089058	0.087011	25-37	0.077658
FC10	0.086912	0.086417	10-14	0.074474
FC11	0.089004	0.087311	41-32	0.079929
FC12	0.000000	0.000000	0-00	0.000000
FC13	0.086052	0.085755	27-04	0.071000
FC14	0.091764	0.091150	49-05	0.103817
FC15	0.086421	0.086262	146-48	0.073668
FC16	0.089681	0.089051	22-07	0.089593
FC17	0.087168	0.086944	172-43	0.073562
FC18	0.087355	0.086754	178-36	0.074158
FC19	0.099767	0.093882	167-57	0.086939
FC20	0.091861	0.087495	162-02	0.079565
FC21	0.087522	0.086584	170-00	0.074861
FC22	0.102238	0.100804	167-26	0.095048
FC23	0.087552	0.086581	3-15	0.075596
FC24	0.110101	0.106860	164-57	0.124463
FC25	0.077982	0.077183	4-16	0.065767
FC26	0.087583	0.086494	5-15	0.074421
FC27	0.072451	0.071320	10-48	0.064018
FC28	0.091545	0.088758	166-47	0.084751
FC29	0.087913	0.087270	149-38	0.078024
FC30	0.094621	0.092682	34-49	0.101959
WDK1	0.000000	0.000000	0-00	0.000000

Positional Tolerance Check (FeetUS)  
Allowable Tolerance = 0.0640 + 20 PPM  
Tolerance Check Confidence Region = 95%  
Listing Failures Only

Stations From	To	Horizontal Distance	Semi-Major-Axis Actual	Allowed	Ratio Actual/Allowed
2664	FC12	1005.4667	0.1709	0.0841	2.0323 *
2667	FC12	3752.9548	0.1722	0.1391	1.2383 *



FC07	FC08	1176.2190	0.0898	0.0875	1.0259 *
FC16	WDK1	998.0496	0.0897	0.0840	1.0681 *

Final values

Adjusted Coordinates (FeetUS)

Station	N	E	Elev.	Description
			(See Digital Levels and Final Values)	
FC01	7010232.399993	11857357.063962	<del>337.078479</del>	
FC02	7009280.603011	11855791.050141	<del>349.215146</del>	
FC03	7008738.615506	11854964.154566	<del>343.164726</del>	
FC04	7008342.699601	11856765.977364	<del>307.920171</del>	
FC05	7007430.121950	11855488.399448	<del>343.614725</del>	
FC06	7007017.907106	11856383.387297	<del>342.233568</del>	
FC07	7006028.271992	11856476.103014	<del>349.048436</del>	
FC08	7005877.024380	11857642.557150	<del>328.398190</del>	NEW CTL
FC09	7007164.145801	11858670.557868	<del>291.931001</del>	
FC10	7007963.833872	11858084.497007	<del>298.725795</del>	
FC11	7009153.173519	11858561.445240	<del>322.359146</del>	
FC12	7008281.857020	11859765.398660	<del>326.280120</del>	NEW CTL
FC13	7006416.513812	11860681.502274	<del>299.594826</del>	
FC14	7005257.187627	11862325.804240	<del>331.102796</del>	
FC15	7004596.568554	11863476.176543	<del>324.584461</del>	
FC16	7004442.592660	11864659.453844	<del>364.026252</del>	
FC17	7004752.020815	11866452.726076	<del>362.230118</del>	
FC18	7006176.113150	11866008.819329	<del>322.152373</del>	
FC19	7005991.562523	11864747.733070	<del>321.907532</del>	
FC20	7005250.442392	11863979.332990	<del>365.011450</del>	
FC21	7006853.664071	11863924.058518	<del>296.533479</del>	
FC22	7007636.158244	11862794.973941	<del>307.519888</del>	
FC23	7007784.542306	11861881.925579	<del>338.869243</del>	
FC24	7008570.348022	11862301.575645	<del>319.618561</del>	
FC25	7009861.667840	11860499.485486	<del>326.980558</del>	
FC26	7009870.612836	11859132.095302	<del>325.916033</del>	
FC27	7010640.721768	11858283.679576	<del>345.075443</del>	
FC28	7011187.150523	11859505.395656	<del>350.855673</del>	
FC29	7011537.011893	11858291.205005	<del>374.750784</del>	
FC30	7011632.211085	11856536.710201	<del>368.062888</del>	
WDK1	7003732.847080	11865361.140590	401.319310	NEW CTL
2664	7008228.503495	11860769.448822	358.924227	
2667	7010504.280164	11856741.245041	351.178632	
4861	7014074.915110	11864739.619840	451.997780	NGS HV4861
8560	7011799.225790	11855496.936500	401.203980	NGS HV8560
9517	7005516.717286	11860732.261512	307.210124	



Adjusted Positions and Ellipsoid Heights (FeetUS)

Station	Latitude	Longitude	Ellip Ht	Geoid Ht
2664	38-53-07.44672862	77-10-21.13938608	254.426348	-104.497879
2667	38-53-30.51231676	77-11-11.66699198	246.771444	-104.407188
4861	38-54-04.65971622	77-09-29.85350767	347.516159	-104.481621
8560	38-53-43.48673561	77-11-27.16998118	296.831254	-104.372726
9517	38-52-40.64977921	77-10-22.10544207	202.674968	-104.535156
FC01	38-53-27.73800053	77-11-03.92812812	232.658351	-104.420128
FC02	38-53-18.55215124	77-11-23.90478325	244.805287	-104.409859
FC03	38-53-13.31184761	77-11-34.45949492	238.760155	-104.404572
FC04	38-53-09.14457092	77-11-11.74533992	203.483541	-104.436630
FC05	38-53-00.30533831	77-11-28.06584307	239.184114	-104.430611
FC06	38-52-56.10487751	77-11-16.82292484	237.784312	-104.449257
FC07	38-52-46.31057657	77-11-15.82941655	244.583936	-104.464500
FC08	38-52-44.65063268	77-11-01.10745032	223.914555	-104.483635
FC09	38-52-57.22616945	77-10-47.87480802	187.450181	-104.480820
FC10	38-53-05.21321986	77-10-55.14045594	194.264652	-104.461143
FC11	38-53-16.90047438	77-10-48.89295270	217.906990	-104.452156
FC12	38-53-08.11736876	77-10-33.82653055	221.798247	-104.481873
FC13	38-52-49.55028484	77-10-22.58278207	195.073143	-104.521683
FC14	38-52-37.85649281	77-10-02.00380841	226.539777	-104.563019
FC15	38-52-31.16185871	77-09-47.57992951	219.994541	-104.589920
FC16	38-52-29.46944627	77-09-32.64718993	259.415817	-104.610435
FC17	38-52-32.26819702	77-09-09.91608020	257.597000	-104.633118
FC18	38-52-46.40771193	77-09-15.26481517	217.545920	-104.606453
FC19	38-52-44.76611285	77-09-31.24483631	217.317764	-104.589767
FC20	38-52-37.55202931	77-09-41.09753604	260.423094	-104.588356
FC21	38-52-53.40561032	77-09-41.50086057	191.968400	-104.565079
FC22	38-53-01.30194790	77-09-55.63422944	202.982992	-104.536896
FC23	38-53-02.89955515	77-10-07.15282542	234.348354	-104.520889
FC24	38-53-10.60595862	77-10-01.70189451	215.102059	-104.516502
FC25	38-53-23.62685273	77-10-24.25479020	222.508901	-104.471657
FC26	38-53-23.91021619	77-10-41.54579931	221.464937	-104.451096
FC27	38-53-31.64227893	77-10-52.13534336	240.647579	-104.427864
FC28	38-53-36.86919660	77-10-36.58487954	246.416967	-104.438705
FC29	38-53-40.49978664	77-10-51.87730663	270.334303	-104.416481
FC30	38-53-41.68926594	77-11-14.04970820	263.673080	-104.389809
WDK1	38-52-22.35319451	77-09-23.90655542	296.688893	-104.630417
			Average:	-104.492719



Convergence Angles (DMS) and Grid Factors at Stations  
 (Grid Azimuth = Geodetic Azimuth - Convergence)  
 (Elevation Factor Includes a Geoid Height Correction at Each Station))

Station	Convergence	----- Factors -----		
	Angle	Scale	x Elevation	= Combined
2664	0-49-42.57	0.99995929	0.99998783	0.99994712
2667	0-49-11.04	0.99995982	0.99998820	0.99994801
4861	0-50-14.58	0.99996062	0.99998338	0.99994400
8560	0-49-01.36	0.99996012	0.99998580	0.99994592
9517	0-49-41.97	0.99995869	0.99999031	0.99994900
FC01	0-49-15.87	0.99995975	0.99998887	0.99994863
FC02	0-49-03.40	0.99995954	0.99998829	0.99994783
FC03	0-48-56.81	0.99995942	0.99998858	0.99994800
FC04	0-49-10.99	0.99995933	0.99999027	0.99994960
FC05	0-49-00.80	0.99995913	0.99998856	0.99994769
FC06	0-49-07.82	0.99995903	0.99998863	0.99994766
FC07	0-49-08.44	0.99995881	0.99998830	0.99994712
FC08	0-49-17.63	0.99995878	0.99998929	0.99994807
FC09	0-49-25.89	0.99995906	0.99999104	0.99995009
FC10	0-49-21.35	0.99995924	0.99999071	0.99994995
FC11	0-49-25.25	0.99995950	0.99998958	0.99994908
FC12	0-49-34.65	0.99995930	0.99998939	0.99994870
FC13	0-49-41.67	0.99995889	0.99999067	0.99994956
FC14	0-49-54.52	0.99995863	0.99998917	0.99994780
FC15	0-50-03.52	0.99995848	0.99998948	0.99994796
FC16	0-50-12.84	0.99995845	0.99998759	0.99994604
FC17	0-50-27.02	0.99995851	0.99998768	0.99994619
FC18	0-50-23.69	0.99995882	0.99998960	0.99994841
FC19	0-50-13.71	0.99995878	0.99998961	0.99994839
FC20	0-50-07.56	0.99995862	0.99998755	0.99994617
FC21	0-50-07.31	0.99995897	0.99999082	0.99994979
FC22	0-49-58.49	0.99995915	0.99999029	0.99994944
FC23	0-49-51.30	0.99995918	0.99998879	0.99994798
FC24	0-49-54.70	0.99995936	0.99998971	0.99994907
FC25	0-49-40.63	0.99995966	0.99998936	0.99994902
FC26	0-49-29.84	0.99995966	0.99998941	0.99994907
FC27	0-49-23.23	0.99995984	0.99998849	0.99994833
FC28	0-49-32.93	0.99995996	0.99998822	0.99994818
FC29	0-49-23.39	0.99996005	0.99998707	0.99994712
FC30	0-49-09.55	0.99996008	0.99998739	0.99994747
WDK1	0-50-18.29	0.99995829	0.99998581	0.99994410
Project Averages:	0-49-37.63	0.99995924	0.99998872	0.99994796



## Digital Levels:

KCI TECHNOLOGIES. INC.  
LEVELS PROJECT REPORT  
FALLS CHURCH DENSIFICATION  
L27273  
W. D. KLIPPER - CHIEF OF PARTY  
12/18/2009 TO 01/06/2010

### A. Location

This project is located in Falls Church, Virginia.

### B. Scope

1. Purpose to establish elevations on control points for the City of Falls Church.
2. Specifications were followed during the execution of this of this project.
3. Monumentation-Monuments were set per project instructions.

### C. Instrumentation

The following electronic levels were used on this project:

Make	Model	Serial
Leica	2002	338213

The following rods were used on this project:

Make	Model	Serial
Leica	Fiberglass	559585
Leica	Fiberglass	559586

### D. Comments

1. Reconnaissance  
13 existing third-order bench marks were recovered and 31 new marks were set.  
It was decided to level to them with single-run inter-connected loops.
2. Deviation from specifications  
There were a few instances where the setup imbalance slightly exceeded specifications, but this did not seem to affect the results.
3. Routes  
The work was done along gently rolling city streets in cold weather.
4. Problems  
None.
5. Recommendations  
The project should be loaded, adjusted and published.



## 6. Software used

Translev 4.14 and WinDesc 4.15 were used to process the observations.

## D. Statistics

1. Total No. Runnings: 53  
Total Distance (km): 24.63  
Avg Running Dist (km): 0.46  
Avg Sight Dist (m): 26.4  
Total Time (Hr.): 27.2  
Total Time (Days): 7  
Setups/Hour: 17  
Kilometers/Hour: 0.91  
Kilometers/Day: 3.5

## 2. Closures

Loop	Misclosure	Distance
1	.57 mm	1.062 km
2	4.19 mm	4.276 km
3	-0.16 mm	4.383 km
4	0.76 mm	1.626 km
5	-4.51 mm	7.143 km
6	0.79 mm	4.568 km
7	-3.21 mm	5.036 km
8	3.15 mm	4.427 km
9	3.49 mm	0.878 km

## 3. Check measurements

## 4. Progress

## 5. Reruns

## E. Status

## 1. Records

Original project records will be maintained by this KCI Technologies.



CITY OF FALLS CHURCH FINAL CONTROL POINT VALUES												
GPS EFFORT											DIGITAL LEVELS	
Point #	Northing	Easting	Latitude	Longitude	Ellip Ht (Ft)	Geoid Ht	GPS Elev (ft)	Elev (Ft)	Elev. (m)			
FC01	7010232.39999	11857357.06396	38-53-27.73800053	77-11-03.92812812	232.65835	-104.42013	337.08	337.16	102.7678			
FC02	7009280.60301	11855791.05014	38-53-18.55215124	77-11-23.90478325	244.80529	-104.40986	349.22	349.22	106.4437			
FC03	7008738.61551	11854964.15457	38-53-13.31184761	77-11-34.45949492	238.76015	-104.40457	343.16	343.11	104.5806			
FC04	7008342.69960	11856765.97736	38-53-09.14457092	77-11-11.74533992	203.48354	-104.43663	307.92	307.94	93.8601			
FC05	7007430.12195	11855488.39945	38-53-00.30533831	77-11-28.06584307	239.18411	-104.43061	343.61	343.66	104.7484			
FC06	7007017.90711	11856383.38730	38-52-56.10487751	77-11-16.82292484	237.78431	-104.44926	342.23	342.23	104.3116			
FC07	7006028.27199	11856476.10301	38-52-46.31057657	77-11-15.82941655	244.58394	-104.46450	349.05	349.08	106.4002			
FC08	7005877.02438	11857642.55715	38-52-44.65063268	77-11-01.10745032	223.91456	-104.48364	328.40	328.50	100.1256			
FC09	7007164.14580	11858670.55787	38-52-57.22616945	77-10-47.87480802	187.45018	-104.48082	291.93	291.86	88.9605			
FC10	7007963.83387	11858084.49701	38-53-05.21321986	77-10-55.14045594	194.26465	-104.46114	298.72	298.71	91.0471			
FC11	7009153.17352	11858561.44524	38-53-16.90047438	77-10-48.89295270	217.90699	-104.45216	322.36	322.49	98.2953			
FC12	7008281.85702	11859765.39866	38-53-08.11736876	77-10-33.82653055	221.79825	-104.48187	326.28	326.41	99.4910			
FC13	7006416.51381	11860681.50227	38-52-49.55028484	77-10-22.58278207	195.07314	-104.52168	299.59	299.60	91.3188			
FC14	7005257.18763	11862325.80424	38-52-37.85649281	77-10-02.00380841	226.53978	-104.56302	331.10	331.09	100.9168			
FC15	7004596.56855	11863476.17654	38-52-31.16185871	77-09-47.57992951	219.99454	-104.58992	324.58	324.60	98.9382			
FC16	7004442.59266	11864659.45384	38-52-29.46944627	77-09-32.64718993	259.41582	-104.61044	364.03	364.05	110.9613			
FC17	7004752.02081	11866452.72608	38-52-32.26819702	77-09-09.91608020	257.59700	-104.63312	362.23	362.37	110.4508			
FC18	7006176.11315	11866008.81933	38-52-46.40771193	77-09-15.26481517	217.54592	-104.60645	322.15	322.23	98.2168			
FC19	7005991.56252	11864747.73307	38-52-44.76611285	77-09-31.24483631	217.31776	-104.58977	321.91	322.00	98.1460			
FC20	7005250.44239	11863979.33299	38-52-37.55202931	77-09-41.09753604	260.42309	-104.58836	365.01	365.08	111.2753			
FC21	7006853.66407	11863924.05852	38-52-53.40561032	77-09-41.50086057	191.96840	-104.56508	296.52	296.68	90.4276			
FC22	7007636.15824	11862794.97394	38-53-01.30194790	77-09-55.63422944	202.98299	-104.53690	307.52	307.67	93.7783			
FC23	7007784.54231	11861881.92558	38-53-02.89955515	77-10-07.15282542	234.34835	-104.52089	338.87	338.96	103.3158			
FC24	7008570.34802	11862301.57564	38-53-10.60595862	77-10-01.70189451	215.10206	-104.51650	319.62	319.70	97.4440			
FC25	7009861.66784	11860499.48549	38-53-23.62688273	77-10-24.25479020	222.50890	-104.47166	326.98	327.10	99.7014			
FC26	7009870.61284	11859132.09530	38-53-23.91021619	77-10-41.54579931	221.46494	-104.45110	325.92	326.08	99.3897			
FC27	7010640.72177	11858283.67958	38-53-31.64227893	77-10-52.13534336	240.64758	-104.42786	345.08	345.15	105.2024			
FC28	7011187.15052	11859505.39566	38-53-36.86919660	77-10-36.58487954	246.41697	-104.43871	350.86	350.96	106.9736			
FC29	7011537.01189	11858291.20501	38-53-40.49978664	77-10-51.87730663	270.33430	-104.41648	374.75	374.89	114.2682			
FC30	7011632.21109	11856536.71020	38-53-41.68926594	77-11-14.04970820	263.67308	-104.38981	368.06	368.20	112.2283			



## NGS CORS :

AF9522 \*\*\*\*\*  
AF9522 HT\_MOD - This is a Height Modernization Survey Station.  
AF9522 CORS - This is a GPS Continuously Operating Reference Station.  
AF9522 DESIGNATION - GAITHERSBURG CORS ARP  
AF9522 CORS\_ID - GAIT  
AF9522 PID - AF9522  
AF9522 STATE/COUNTY- MD/MONTGOMERY  
AF9522 USGS QUAD - GAITHERSBURG (1979)  
AF9522  
AF9522 \*CURRENT SURVEY CONTROL  
AF9522  
AF9522\* NAD 83(CORS)- 39 08 02.34046(N) 077 13 15.51884(W) ADJUSTED  
AF9522\* NAVD 88 - 140.66 (meters) 461.5 (feet) GPS OBS  
AF9522  
AF9522 EPOCH DATE - 2002.00  
AF9522 X - 1,095,790.780 (meters) COMP  
AF9522 Y - -4,831,328.056 (meters) COMP  
AF9522 Z - 4,003,934.413 (meters) COMP  
AF9522 ELLIP HEIGHT- 108.944 (meters) (03/??/02) ADJUSTED  
AF9522 GEOID HEIGHT- -31.71 (meters) GEOID09  
AF9522 HORZ ORDER - SPECIAL (CORS)  
AF9522 ELLP ORDER - SPECIAL (CORS)  
AF9522  
AF9522. ITRF positions are available for this station.  
AF9522. The coordinates were established by GPS observations  
AF9522. and adjusted by the National Geodetic Survey in March 2002.  
AF9522. The coordinates are valid at the epoch date displayed above.  
AF9522. The epoch date for horizontal control is a decimal equivalence  
AF9522. of Year/Month/Day.  
AF9522  
AF9522. The orthometric height was determined by GPS observations and a  
AF9522. high-resolution geoid model using precise GPS observation and  
AF9522. processing techniques.  
AF9522  
AF9522. The PID for the CORS L1 Phase Center is DJ3083.  
AF9522  
AF9522. The XYZ, and position/ellipsoidal ht. are equivalent.  
AF9522  
AF9522. The ellipsoidal height was determined by GPS observations  
AF9522. and is referenced to NAD 83.  
AF9522  
AF9522. The geoid height was determined by GEOID09.  
AF9522  
AF9522;  
AF9522; SPC MD - 162,903.082 380,894.456 MT 0.99995997 -0 08 19.3  
AF9522; SPC MD - 534,457.86 1,249,651.23 sFT 0.99995997 -0 08 19.3  
AF9522  
AF9522! - Elev Factor x Scale Factor = Combined Factor  
AF9522! SPC MD - 0.99998291 x 0.99995997 = 0.99994288  
AF9522  
AF9522 SUPERSEDED SURVEY CONTROL  
AF9522  
AF9522 NAD 83(CORS)- 39 08 02.34059(N) 077 13 15.51925(W) AD(1997.00) c  
AF9522 ELLIP H (01/??/01) 108.937 (m) GP(1997.00) c c  
AF9522 NAD 83(CORS)- 39 08 02.34060(N) 077 13 15.51927(W) AD(1996.00) c  
AF9522 NAD 83(CORS)- 39 08 02.34060(N) 077 13 15.51927(W) AD(1997.00) c  
AF9522 ELLIP H (04/??/96) 108.937 (m) GP(1997.00) c c  
AF9522 ELLIP H (04/??/96) 108.937 (m) GP(1996.00) c c  
AF9522  
AF9522. Superseded values are not recommended for survey control.



AF9522.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AF9522.See file dsdata.txt to determine how the superseded data were derived.  
 AF9522  
 AF9522\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ0803533993(NAD 83)  
 AF9522\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA  
 AF9522  
 AF9522 STATION DESCRIPTION  
 AF9522  
 AF9522'DESCRIBED BY NATIONAL GEODETIC SURVEY 2002  
 AF9522'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND  
 AF9522'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE  
 AF9522'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.  
 AF9522' FTP CORS.NGS.NOAA.GOV: CORS/COORD AND CORS/STATION\_LOG  
 AF9522' [HTTP://WWW.NGS.NOAA.GOV/CORS](http://www.ngs.noaa.gov/cors).

DI1659 \*\*\*\*\*  
 DI1659 CORS - This is a GPS Continuously Operating Reference Station.  
 DI1659 DESIGNATION - LOYOLA D COOP CORS ARP  
 DI1659 CORS\_ID - LOYD  
 DI1659 PID - DI1659  
 DI1659 STATE/COUNTY- MD/PRINCE GEORGES  
 DI1659 USGS QUAD - LANHAM (1993)  
 DI1659  
 DI1659 \*CURRENT SURVEY CONTROL  
 DI1659  
 DI1659\* NAD 83(CORS)- 38 56 52.48505(N) 076 49 46.65062(W) ADJUSTED  
 DI1659\* NAVD 88 - \*(meters) \*(feet)  
 DI1659  
 DI1659 EPOCH DATE - 2002.00  
 DI1659 X - 1,131,714.642 (meters) COMP  
 DI1659 Y - -4,836,336.783 (meters) COMP  
 DI1659 Z - 3,987,837.542 (meters) COMP  
 DI1659 ELLIP HEIGHT- 25.473 (meters) (09/??/06) ADJUSTED  
 DI1659 GEOID HEIGHT- -32.44 (meters) GEOID09  
 DI1659 HORZ ORDER - SPECIAL (CORS)  
 DI1659 ELLP ORDER - SPECIAL (CORS)  
 DI1659  
 DI1659.ITRF positions are available for this station.  
 DI1659.The coordinates were established by GPS observations  
 DI1659.and adjusted by the National Geodetic Survey in September 2006.  
 DI1659.The coordinates are valid at the epoch date displayed above.  
 DI1659.The epoch date for horizontal control is a decimal equivalence  
 DI1659.of Year/Month/Day.  
 DI1659  
 DI1659  
 DI1659.The PID for the CORS L1 Phase Center is DI1660.  
 DI1659  
 DI1659.The XYZ, and position/ellipsoidal ht. are equivalent.  
 DI1659  
 DI1659.The ellipsoidal height was determined by GPS observations  
 DI1659.and is referenced to NAD 83.  
 DI1659  
 DI1659.The geoid height was determined by GEOID09.  
 DI1659  
 DI1659;  
 DI1659;SPC MD - 142,237.780 414,769.036 MT 0.99995064 +0 06 25.0  
 DI1659;SPC MD - 466,658.45 1,360,788.08 sFT 0.99995064 +0 06 25.0  
 DI1659  
 DI1659!  
 DI1659!SPC MD - Elev Factor x Scale Factor = Combined Factor  
 DI1659!SPC MD - 0.99999600 x 0.99995064 = 0.99994664  
 DI1659  
 DI1659 SUPERSEDED SURVEY CONTROL  
 DI1659



DI1659.No superseded survey control is available for this station.  
 DI1659  
 DI1659\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ4144712588(NAD 83)  
 DI1659\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA  
 DI1659  
 DI1659 STATION DESCRIPTION  
 DI1659  
 DI1659'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006  
 DI1659'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND  
 DI1659'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE  
 DI1659'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.  
 DI1659' FTP CORS.NGS.NOAA.GOV: CORS/COORD AND CORS/STATION\_LOG  
 DI1659' HTTP://WWW.NGS.NOAA.GOV/CORS.

DH3635 \*\*\*\*\*  
 DH3635 CORS - This is a GPS Continuously Operating Reference Station.  
 DH3635 DESIGNATION - LOYOLA 5 COOP CORS ARP  
 DH3635 CORS\_ID - LOY5  
 DH3635 PID - DH3635  
 DH3635 STATE/COUNTY- VA/FAIRFAX  
 DH3635 USGS QUAD - HERNDON (1994)  
 DH3635  
 DH3635 \*CURRENT SURVEY CONTROL  
 DH3635  
 DH3635\* NAD 83(CORS)- 38 53 11.89557(N) 077 26 10.53573(W) ADJUSTED  
 DH3635\* NAVD 88 - \*(meters) \*(feet)  
 DH3635  
 DH3635 EPOCH DATE - 2002.00  
 DH3635 X - 1,081,382.767 (meters) COMP  
 DH3635 Y - -4,852,250.601 (meters) COMP  
 DH3635 Z - 3,982,571.245 (meters) COMP  
 DH3635 ELLIP HEIGHT- 67.408 (meters) (06/??/05) ADJUSTED  
 DH3635 GEOID HEIGHT- -31.85 (meters) GEOID09  
 DH3635 HORZ ORDER - SPECIAL (CORS)  
 DH3635 ELLP ORDER - SPECIAL (CORS)  
 DH3635  
 DH3635.ITRF positions are available for this station.  
 DH3635.The coordinates were established by GPS observations  
 DH3635.and adjusted by the National Geodetic Survey in June 2005.  
 DH3635.The coordinates are valid at the epoch date displayed above.  
 DH3635.The epoch date for horizontal control is a decimal equivalence  
 DH3635.of Year/Month/Day.  
 DH3635  
 DH3635  
 DH3635.The PID for the CORS L1 Phase Center is DH3636.  
 DH3635  
 DH3635.The XYZ, and position/ellipsoidal ht. are equivalent.  
 DH3635  
 DH3635.The ellipsoidal height was determined by GPS observations  
 DH3635.and is referenced to NAD 83.  
 DH3635  
 DH3635.The geoid height was determined by GEOID09.  
 DH3635  
 DH3635;  
 DH3635; North East Units Scale Factor Converg.  
 DH3635;SPC VA N - 2,135,951.509 3,592,289.023 MT 0.99995939 +0 39 50.0  
 DH3635;SPC VA N - 7,007,700.91 11,785,701.57 sFT 0.99995939 +0 39 50.0  
 DH3635  
 DH3635! - Elev Factor x Scale Factor = Combined Factor  
 DH3635!SPC VA N - 0.99998942 x 0.99995939 = 0.99994881  
 DH3635  
 DH3635 SUPERSEDED SURVEY CONTROL  
 DH3635  
 DH3635.No superseded survey control is available for this station.



DH3635  
DH3635\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18STJ8869007018(NAD 83)  
DH3635\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA  
DH3635  
DH3635 STATION DESCRIPTION  
DH3635  
DH3635 DESCRIBED BY NATIONAL GEODETIC SURVEY 2005  
DH3635 STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND  
DH3635 VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE  
DH3635 BY ANONYMOUS FTP OR THE WORLDWIDE WEB.  
DH3635 FTP CORS.NGS.NOAA.GOV: CORS/COORD AND CORS/STATION\_LOG  
DH3635 HTTP://WWW.NGS.NOAA.GOV/CORS.

DH7960 \*\*\*\*\*  
DH7960 CORS - This is a GPS Continuously Operating Reference Station.  
DH7960 DESIGNATION - LOYOLA B COOP CORS ARP  
DH7960 CORS\_ID - LOYB  
DH7960 PID - DH7960  
DH7960 STATE/COUNTY- VA/FAIRFAX  
DH7960 USGS QUAD - FORT BELVOIR (1983)  
DH7960  
DH7960 \*CURRENT SURVEY CONTROL  
DH7960  


---

DH7960\* NAD 83(CORS)- 38 43 42.02222(N) 077 11 02.29856(W) ADJUSTED  
DH7960\* NAVD 88 - \*(meters) \*(feet)  


---

DH7960 EPOCH DATE - 2002.00  
DH7960 X - 1,105,168.954 (meters) COMP  
DH7960 Y - -4,858,128.341 (meters) COMP  
DH7960 Z - 3,968,834.126 (meters) COMP  
DH7960 ELLIP HEIGHT- -1.544 (meters) (02/??/06) ADJUSTED  
DH7960 GEOID HEIGHT- -32.20 (meters) GEOID09  
DH7960 HORZ ORDER - SPECIAL (CORS)  
DH7960 ELLP ORDER - SPECIAL (CORS)  
DH7960  
DH7960.ITRF positions are available for this station.  
DH7960.The coordinates were established by GPS observations  
DH7960.and adjusted by the National Geodetic Survey in February 2006.  
DH7960.The coordinates are valid at the epoch date displayed above.  
DH7960.The epoch date for horizontal control is a decimal equivalence  
DH7960.of Year/Month/Day.  
DH7960  
DH7960  
DH7960.The PID for the CORS L1 Phase Center is DK8276.  
DH7960  
DH7960.The XYZ, and position/ellipsoidal ht. are equivalent.  
DH7960  
DH7960.The ellipsoidal height was determined by GPS observations  
DH7960.and is referenced to NAD 83.  
DH7960  
DH7960.The geoid height was determined by GEOID09.  
DH7960  
DH7960;  
DH7960; North East Units Scale Factor Converg.  
DH7960;SPC VA N - 2,118,664.854 3,614,427.826 MT 0.99995025 +0 49 16.9  
DH7960;SPC VA N - 6,950,986.28 11,858,335.29 sFT 0.99995025 +0 49 16.9  
DH7960  
DH7960! - Elev Factor x Scale Factor = Combined Factor  
DH7960!SPC VA N - 1.00000024 x 0.99995025 = 0.99995049  
DH7960  
DH7960 SUPERSEDED SURVEY CONTROL  
DH7960  
DH7960.No superseded survey control is available for this station.  
DH7960



DH7960\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUH1015488895(NAD 83)  
DH7960\_MARKER: STATION IS THE ANTENNA REFERENCE POINT OF THE GPS ANTENNA  
DH7960  
DH7960 STATION DESCRIPTION  
DH7960  
DH7960'DESCRIBED BY NATIONAL GEODETIC SURVEY 2006  
DH7960'STATION IS A GPS CORS. LATEST INFORMATION INCLUDING POSITIONS AND  
DH7960'VELOCITIES ARE AVAILABLE IN THE COORDINATE AND LOG FILES ACCESSIBLE  
DH7960'BY ANONYMOUS FTP OR THE WORLDWIDE WEB.  
DH7960' FTP CORS.NGS.NOAA.GOV: CORS/COORD AND CORS/STATION\_LOG  
DH7960' [HTTP://WWW.NGS.NOAA.GOV/CORS](http://www.ngs.noaa.gov/cors).



## NGS Legacy Control Datasheets:

```

HV4861 *****
HV4861 CBN      - This is a Cooperative Base Network Control Station.
HV4861 DESIGNATION - POWHATAN
HV4861 PID      - HV4861
HV4861 STATE/COUNTY- VA/ARLINGTON
HV4861 USGS QUAD  - FALLS CHURCH (1994)
HV4861
HV4861          *CURRENT SURVEY CONTROL
HV4861
HV4861* NAD 83(2007)- 38 54 04.65961(N)  077 09 29.85398(W)  ADJUSTED
HV4861* NAVD 88    - 137.792 (meters)  452.07 (feet) ADJUSTED
HV4861
HV4861 EPOCH DATE - 2002.00
HV4861 X      - 1,104,689.952 (meters)      COMP
HV4861 Y      - -4,845,980.379 (meters)     COMP
HV4861 Z      - 3,983,861.804 (meters)     COMP
HV4861 LAPLACE CORR- -2.21 (seconds)      DEFLEC09
HV4861 ELLIP HEIGHT- 105.894 (meters)     (02/10/07) ADJUSTED
HV4861 GEOID HEIGHT- -31.88 (meters)      GEOID09
HV4861 DYNAMIC HT - 137.716 (meters)  451.82 (feet) COMP
HV4861
HV4861 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
HV4861 Type  PID  Designation           North East Ellip
HV4861 -----
HV4861 NETWORK HV4861 POWHATAN           0.51 0.45 1.43
HV4861 -----
HV4861 MODELED GRAV- 980,078.8 (mgal)      NAVD 88
HV4861
HV4861 VERT ORDER - THIRD
HV4861
HV4861.The horizontal coordinates were established by GPS observations
HV4861.and adjusted by the National Geodetic Survey in February 2007.
HV4861
HV4861.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
HV4861.See National Readjustment for more information.
HV4861.The horizontal coordinates are valid at the epoch date displayed above.
HV4861.The epoch date for horizontal control is a decimal equivalence
HV4861.of Year/Month/Day.
HV4861
HV4861.The orthometric height was determined by differential leveling and
HV4861.adjusted in September 2004.
HV4861.No vertical observational check was made to the station.
HV4861
HV4861.The X, Y, and Z were computed from the position and the ellipsoidal ht.
HV4861
HV4861.The Laplace correction was computed from DEFLEC09 derived deflections.
HV4861
HV4861.The ellipsoidal height was determined by GPS observations
HV4861.and is referenced to NAD 83.
HV4861
HV4861.The geoid height was determined by GEOID09.
HV4861
HV4861.The dynamic height is computed by dividing the NAVD 88
HV4861.geopotential number by the normal gravity value computed on the
HV4861.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
HV4861.degrees latitude (g = 980.6199 gals.).
HV4861
HV4861.The modeled gravity was interpolated from observed gravity values.
HV4861
HV4861;          North    East    Units Scale Factor Converg.

```



HV4861;SPC VA N - 2,137,894.306 3,616,379.858 MT 0.99996062 +0 50 14.6  
 HV4861;SPC VA N - 7,014,074.90 11,864,739.58 sFT 0.99996062 +0 50 14.6  
 HV4861;SPC MD - 137,060.887 386,269.329 MT 0.99994995 -0 05 57.7  
 HV4861;SPC MD - 449,673.93 1,267,285.29 sFT 0.99994995 -0 05 57.7  
 HV4861;UTM 18 - 4,308,037.468 312,840.806 MT 1.00003135 -1 21 20.7  
 HV4861  
 HV4861! - Elev Factor x Scale Factor = Combined Factor  
 HV4861!SPC VA N - 0.99998339 x 0.99996062 = 0.99994401  
 HV4861!SPC MD - 0.99998339 x 0.99994995 = 0.99993334  
 HV4861!UTM 18 - 0.99998339 x 1.00003135 = 1.00001474  
 HV4861  
 HV4861: Primary Azimuth Mark Grid Az  
 HV4861:SPC VA N - FALLS CH RAD STA WFAX TOWER 204 33 40.2  
 HV4861:SPC MD - FALLS CH RAD STA WFAX TOWER 205 29 52.5  
 HV4861:UTM 18 - FALLS CH RAD STA WFAX TOWER 206 45 15.5  
 HV4861  
 HV4861|-----|  
 HV4861| PID Reference Object Distance Geod. Az |  
 HV4861| | dddmmss.s |  
 HV4861| DC7072 POWHATAN RM 1 37.426 METERS 03809 |  
 HV4861| DC7074 POWHATAN RM 3 14.078 METERS 09255 |  
 HV4861| DC7073 POWHATAN RM 2 34.464 METERS 13656 |  
 HV4861| HV4777 FALLS CHURCH WILLISTON TANK APPROX. 3.3 KM 1615107.9 |  
 HV4861| HV4791 FALLS CH SEVEN CORNERS SPIRE APPROX. 3.0 KM 1762115.8 |  
 HV4861| HV4856 FALLS CH METH CH SPIRE APPROX. 2.0 KM 2005847.0 |  
 HV4861| HV4854 FALLS CHURCH COLUMBIA BAP CH APPROX. 1.9 KM 2034449.3 |  
 HV4861| HV4812 FALLS CHURCH MUN TANK APPROX. 2.2 KM 2050753.4 |  
 HV4861| HV4815 FALLS CH RAD STA WFAX TOWER APPROX. 2.6 KM 2052354.8 |  
 HV4861| HV4814 FALLS CH RAD STA WOL TOWER APPROX. 4.0 KM 2464416.8 |  
 HV4861| DC7075 POWHATAN RM 4 15.817 METERS 27306 |  
 HV4861| HV4806 ARLINGTON MINOR HILL STANDPIPE 102.733 METERS 33901 |  
 HV4861|-----|  
 HV4861  
 HV4861 SUPERSEDED SURVEY CONTROL  
 HV4861  
 HV4861 ELLIP H (07/14/04) 105.980 (m) GP( ) 3 2  
 HV4861 ELLIP H (08/14/01) 105.974 (m) GP( ) 4 1  
 HV4861 NAD 83(1993)- 38 54 04.65989(N) 077 09 29.85391(W) AD( ) B  
 HV4861 ELLIP H (06/29/94) 105.940 (m) GP( ) 4 1  
 HV4861 NAD 83(1993)- 38 54 04.65996(N) 077 09 29.85387(W) AD( ) B  
 HV4861 ELLIP H (04/04/94) 105.940 (m) GP( ) 4 1  
 HV4861 NAD 83(1993)- 38 54 04.66013(N) 077 09 29.85353(W) AD( ) B  
 HV4861 ELLIP H (12/31/92) 105.931 (m) GP( ) 4 2  
 HV4861 NAD 83(1991)- 38 54 04.65853(N) 077 09 29.85613(W) AD( ) 1  
 HV4861 NAD 83(1986)- 38 54 04.65838(N) 077 09 29.86572(W) AD( ) 1  
 HV4861 NAD 27 - 38 54 04.25744(N) 077 09 30.93302(W) AD( ) 1  
 HV4861 NAVD 88 (01/15/08) 137.79 (m) 452.1 (f) LEVELING 3  
 HV4861 NGVD 29 (05/30/95) 138.0 (m) 453. (f) GPS OBS  
 HV4861  
 HV4861.Superseded values are not recommended for survey control.  
 HV4861.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 HV4861.See file dsdata.txt to determine how the superseded data were derived.  
 HV4861  
 HV4861\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1284008037(NAD 83)  
 HV4861\_MARKER: DS = TRIANGULATION STATION DISK  
 HV4861\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
 HV4861\_SP\_SET: CONCRETE POST  
 HV4861\_STAMPING: POWHATAN 1969  
 HV4861\_MARK LOGO: CGS  
 HV4861\_PROJECTION: FLUSH  
 HV4861\_MAGNETIC: N = NO MAGNETIC MATERIAL  
 HV4861\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 HV4861+STABILITY: SURFACE MOTION



HV4861\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
HV4861+SATELLITE: SATELLITE OBSERVATIONS - June , 2005

HV4861

HV4861 HISTORY	- Date	Condition	Report By
HV4861 HISTORY	- 1969	MONUMENTED	CGS
HV4861 HISTORY	- 1969	GOOD	CGS
HV4861 HISTORY	- 1972	GOOD	NGS
HV4861 HISTORY	- 19910907	GOOD	WHGAI
HV4861 HISTORY	- 19911010	GOOD	MSI
HV4861 HISTORY	- 19920401	GOOD	NGS
HV4861 HISTORY	- 19930816	GOOD	NGS
HV4861 HISTORY	- 19940310	GOOD	GEOMET
HV4861 HISTORY	- 20000320	GOOD	VADOT
HV4861 HISTORY	- 20001010	GOOD	GEOMET
HV4861 HISTORY	- 20001013	GOOD	GEOMET
HV4861 HISTORY	- 20040114	GOOD	ENGGRO
HV4861 HISTORY	- 200506	GOOD	GWS

HV4861

STATION DESCRIPTION

HV4861

HV4861'DESCRIBED BY COAST AND GEODETIC SURVEY 1969 (JBJ)

HV4861'THE STATION IS ABOUT 1-1/2 MILES NORTHEAST OF FALLS CHURCH, 1/10 MILE  
HV4861'SOUTHEAST OF THE FAIRFAX-ARLINGTON COUNTY LINE, ON A STRIP OF  
HV4861'GROUND BETWEEN TWO UNDERGROUND RESERVOIRS, ON A LOW HILL WHICH IS  
HV4861'THE HIGHEST POINT IN ARLINGTON COUNTY AND ON PROPERTY OF ARLINGTON  
HV4861'COUNTY.

HV4861'

HV4861'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAYS 29, 211 AND  
HV4861'STATE HIGHWAY 7 IN FALLS CHURCH, GO NORTHEAST ON U.S. HIGHWAYS 29  
HV4861'AND 211 (LEE HIGHWAY) FOR 1.0 MILE TO NORTH SYCAMORE STREET ON THE  
HV4861'LEFT. TURN LEFT AND GO NORTH ON SYCAMORE STREET FOR 0.7 MILE TO  
HV4861'CROSS STREETS. TURN LEFT AND GO NORTHWEST ON POWHATAN STREET FOR  
HV4861'0.1 MILE TO A LOCATED GATE ON THE LEFT AND THE STATION ON THE  
HV4861'LEFT.

HV4861'

HV4861'STATION MARK IS A STANDARD DISK, STAMPED POWHATAN 1969, SET IN THE  
HV4861'TOP OF A ROUND CONCRETE POST, 14 INCHES IN DIAMETER, THAT IS FLUSH  
HV4861'WITH THE SURFACE OF THE GROUND. IT IS 270.0 FEET SOUTH OF THE  
HV4861'CENTERLINE OF POWHATAN STREET, 78.2 FEET WEST-SOUTHWEST OF A WIRE  
HV4861'MESH FENCE, 20.5 FEET SOUTH-SOUTHEAST OF THE CENTERLINE OF A PAVED  
HV4861'SERVICE ROAD, AND 17.51 FEET NORTH OF THE NORTHEAST CORNER OF A  
HV4861'CONCRETE SLAB. THE UNDERGROUND MARK IS 46 INCHES BELOW THE  
HV4861'SURFACE OF THE GROUND.

HV4861'

HV4861'REFERENCE MARK 1 IS A STANDARD DISK, STAMPED POWHATAN NO 1 1969, SET  
HV4861'IN THE TOP OF A ROUND CONCRETE POST, 12 INCHES IN DIAMETER, THAT IS  
HV4861'FLUSH WITH THE SURFACE OF THE GROUND. IT IS 30.0 FEET  
HV4861'NORTH-NORTHWEST OF POWER LINE POLE NUMBER 1838 0, 9.0 FEET  
HV4861'EAST-NORTHEAST OF THE CENTERLINE OF A PAVED SERVICE ROAD, 1.7  
HV4861'FEET WEST-SOUTHWEST OF THE WIRE MESH FENCE AND ABOUT 1 FOOT  
HV4861'HIGHER IN ELEVATION THAN THE STATION.

HV4861'

HV4861'REFERENCE MARK 2 IS A STANDARD DISK, STAMPED POWHATAN NO 2 1969, SET  
HV4861'IN THE TOP OF A ROUND CONCRETE POST, 12 INCHES IN DIAMETER, THAT IS  
HV4861'FLUSH WITH THE SURFACE OF THE GROUND. IT IS 8.6 FEET  
HV4861'EAST-NORTHEAST OF THE CENTERLINE OF THE PAVED SERVICE ROAD, 3.4  
HV4861'FEET WEST-NORTHWEST OF POWER LINE POLE NUMBER 1838 P, 1.4 FEET  
HV4861'WEST-SOUTHWEST OF THE WIRE MESH FENCE AND ABOUT 1 FOOT HIGHER  
HV4861'IN ELEVATION THAN THE STATION.

HV4861'

HV4861'THERE WAS NO SUITABLE LOCATION FOR AN AZIMUTH MARK.

HV4861'

HV4861'THE DISTANCE BETWEEN THE REFERENCE MARKS WAS NOT MEASURED DUE TO



HV4861'OBSTRUCTIONS.

HV4861

HV4861 STATION RECOVERY (1969)

HV4861

HV4861'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1969

HV4861'RECOVERED IN GOOD CONDITION.

HV4861

HV4861 STATION RECOVERY (1972)

HV4861

HV4861'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1972 (LFS)

HV4861'STATION WAS RECOVERED AS DESCRIBED AND ALL MARKS WERE FOUND TO BE IN

HV4861'GOOD CONDITION. ANOTHER RESERVOIR IS BEING CONSTRUCTED NEAR THE

HV4861'SITE AND IT WAS REQUESTED THAT THE REFERENCE MARKS BE RELOCATED OUT

HV4861'OF THE CONSTRUCTION LIMITS. TWO NEW REFERENCE MARKS WERE

HV4861'ESTABLISHED AND THE OLD REFERENCE MARKS WERE DESTROYED. A CHECK WAS

HV4861'MADE OF THE DISTANCES AND DIRECTIONS TO THE REFERENCE MARKS AND

HV4861'FOUND TO BE CORRECT. ORIGINAL STATION DESCRIPTION IS ADEQUATE

HV4861'WITH THE ADDITIONAL REFERENCE MARK SCRIPTIIONS.

HV4861'

HV4861'REFERENCE MARK NO. 3 IS 28 FEET SOUTHWEST OF THE INTERSECTION OF TWO

HV4861'BLACKTOPPED ROADS AND 9 FEET NORTH OF SINGLE CHAIN FENCE CORNER. THE

HV4861'MARK IS A STANDARD DISK SET FLUSH IN THE TOP OF A CONCRETE MONUMENT

HV4861'ABOUT 10 INCHES IN DIAMETER, FLUSH WITH THE GROUND AND THE DISK IS

HV4861'STAMPED POWHATAN 1969 NO 3 1972.

HV4861'

HV4861'REFERENCE MARK NO. 4 IS 16 FEET SOUTH OF THE CENTERLINE OF

HV4861'BLACKTOPPED ROAD AND 14 FEET NORTH OF SINGLE CHAIN FENCE. THE MARK

HV4861'IS A STANDARD DISK SET FLUSH IN THE TOP OF A CONCRETE

HV4861'MONUMENT ABOUT 10 INCHES IN DIAMETER, FLUSH WITH THE GROUND AND

HV4861'THE DISK IS STAMPED POWHATAN 1969 NO 4 1972.

HV4861'

HV4861'AIRLINE DISTANCE AND DIRECTION FROM NEAREST TOWN--1-1/2 MILES NE OF

HV4861'FALLS CHURCH.

HV4861

HV4861 STATION RECOVERY (1991)

HV4861

HV4861'RECOVERY NOTE BY W H GORDON ASSC 1991

HV4861'RECOVERED IN GOOD CONDITION.

HV4861

HV4861 STATION RECOVERY (1991)

HV4861

HV4861'RECOVERY NOTE BY MEASUREMENT SCIENCE INCORPORATED 1991

HV4861'RECOVERED IN GOOD CONDITION.

HV4861

HV4861 STATION RECOVERY (1992)

HV4861

HV4861'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1992

HV4861'STATION IS LOCATED ABOUT 2.4 KM (1.49 MI) NORTHEAST OF FALLS CHURCH,

HV4861'0.16 KM (0.10 MI) SOUTH OF THE ARLINGTON-FAIRFAX COUNTY LINE, ON THE

HV4861'HIGHEST HILL IN ARLINGTON COUNTY, BETWEEN TWO UNDERGROUND RESERVOIRS

HV4861'AT THE SOUTHWEST SIDE OF POWHATAN STREET, AT THE MINOR HILL PUMPING

HV4861'STATION. OWNERSHIP--ARLINGTON COUNTY. NOTE--MUST CALL ANYONE AT

HV4861'703-358-6555 TO OPEN LOCKED GATES AT ANYTIME. CONTACT WAS MADE WITH

HV4861'TED BAUER AT 703-358-6550.

HV4861'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 29, AND STATE

HV4861'ROUTE 7 (N WASHINGTON STREET AND BROAD STREET) IN FALLS CHURCH, GO

HV4861'1.0 KM (0.62 MI) NORTHEAST ON WASHINGTON STREET TO THE OVERPASS OF

HV4861'INTERSTATE 66. CONTINUE NORTHEAST ON WASHINGTON LEE HIGHWAY FOR 0.6

HV4861'KM (0.37 MI) TO THE JUNCTION OF SYCAMORE STREET ON THE LEFT. TURN

HV4861'LEFT, NORTHWEST, ON SYCAMORE STREET FOR 1.1 KM (0.68 MI) TO THE

HV4861'JUNCTION OF LITTLE FALLS ROAD ON THE RIGHT AND POWHATAN STREET ON THE

HV4861'LEFT. TURN LEFT, NORTHWEST, ON POWHATAN STREET FOR 0.24 KM

HV4861'(0.15 MI) TO AN ASPHALT ROAD ON LEFT AT A PIPE SWING GATE. TURN LEFT



HV4861'ON THE ASPHALT ROAD FOR 0.05 MI (0.08 KM) TO THE SECOND GATE ON THE HV4861'RIGHT AT A SERVICE ROAD. TURN RIGHT THROUGH THE GATE ON SERVICE ROAD HV4861'BETWEEN TWO RESERVOIRS FOR 16 M (52.49 FT) AND THE STATION ON THE HV4861'LEFT.

HV4861'STATION IS 270 FT (82.30 M) SOUTH FROM POWHATAN STREET, 6.1 M HV4861'(20.01 FT) SOUTH FROM THE CENTER OF THE SERVICE ROAD, 5.4 M HV4861'(17.72 FT) NORTH FROM THE NORTHEAST CORNER OF A CONCRETE SLAB, 16.6 M HV4861'(54.46 FT) NORTH FROM AN ACCESS PIPE, 15.7 M (51.51 FT) WEST FROM A HV4861'SECURITY FENCE, 15.8 M (51.84 FT) WEST FROM RM3, 15.8 M (51.84 FT) HV4861'EAST FROM RM4 AND FLUSH WITH THE GROUND SURFACE.

HV4861  
HV4861 STATION RECOVERY (1993)

HV4861  
HV4861 RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1993  
HV4861 RECOVERED IN GOOD CONDITION.

HV4861  
HV4861 STATION RECOVERY (1994)

HV4861  
HV4861 RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
HV4861 RECOVERED AS DESCRIBED.

HV4861  
HV4861 STATION RECOVERY (2000)

HV4861  
HV4861 RECOVERY NOTE BY VIRGINIA DEPARTMENT OF TRANSPORTATION 2000 (JG)  
HV4861 RECOVERED AS DESCRIBED.

HV4861  
HV4861 STATION RECOVERY (2000)

HV4861  
HV4861 RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 2000  
HV4861 MUST CALL (703)228-6555 FOR ACCESS TO STATION. CONTACT WAS MADE WITH  
HV4861 JERRY CORBIN AT (703)228-6560. INFORMATION UPDATE AS OF 10/12/2000.

HV4861  
HV4861 STATION RECOVERY (2000)

HV4861  
HV4861 RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 2000 (KRO)  
HV4861 RECOVERED AS DESCRIBED WITH THE FOLLOWING EXCEPTION - CONTACT PERSON  
HV4861 AT ARLINGTON COUNTY IS MR JERRY CORBIN AT 703.228.6560.

HV4861  
HV4861 STATION RECOVERY (2004)

HV4861  
HV4861 RECOVERY NOTE BY THE ENGINEERING GROUPE INC 2004 (BWJ)  
HV4861 RECOVERED IN GOOD CONDITION.

HV4861  
HV4861 STATION RECOVERY (2005)

HV4861  
HV4861 RECOVERY NOTE BY GW STEPHENS JR AND ASSOCIATES 2005 (WEH)  
HV4861 RECOVERED AS DESCRIBED.

HV8560 \*\*\*\*\*

HV8560 DESIGNATION - MASON 2

HV8560 PID - HV8560

HV8560 STATE/COUNTY- VA/FAIRFAX

HV8560 USGS QUAD - FALLS CHURCH (1994)

HV8560

HV8560 \*CURRENT SURVEY CONTROL

HV8560

HV8560\* NAD 83(2007)- 38 53 43.48503(N) 077 11 27.17038(W) ADJUSTED

HV8560\* NAVD 88 - 122.292 (meters) 401.22 (feet) ADJUSTED

HV8560

HV8560 EPOCH DATE - 2002.00

HV8560 X - 1,102,021.785 (meters) COMP

HV8560 Y - -4,846,996.007 (meters) COMP

HV8560 Z - 3,983,343.921 (meters) COMP



HV8560 LAPLACE CORR- -2.29 (seconds) DEFLEC09  
 HV8560 ELLIP HEIGHT- 90.447 (meters) (02/10/07) ADJUSTED  
 HV8560 GEOID HEIGHT- -31.85 (meters) GEOID09  
 HV8560 DYNAMIC HT - 122.224 (meters) 401.00 (feet) COMP  
 HV8560

HV8560 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

HV8560 Type PID Designation North East Ellip

HV8560 -----

HV8560 NETWORK HV8560 MASON 2 0.86 0.80 2.37

HV8560 -----

HV8560 MODELED GRAV- 980,073.7 (mgal) NAVD 88

HV8560

HV8560 VERT ORDER - THIRD

HV8560

HV8560.The horizontal coordinates were established by GPS observations

HV8560.and adjusted by the National Geodetic Survey in February 2007.

HV8560

HV8560.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).

HV8560.See National Readjustment for more information.

HV8560.The horizontal coordinates are valid at the epoch date displayed above.

HV8560.The epoch date for horizontal control is a decimal equivalence

HV8560.of Year/Month/Day.

HV8560

HV8560.The orthometric height was determined by differential leveling and

HV8560.adjusted in September 2004.

HV8560.No vertical observational check was made to the station.

HV8560

HV8560.Photographs are available for this station.

HV8560

HV8560.The X, Y, and Z were computed from the position and the ellipsoidal ht.

HV8560

HV8560.The Laplace correction was computed from DEFLEC09 derived deflections.

HV8560

HV8560.The ellipsoidal height was determined by GPS observations

HV8560.and is referenced to NAD 83.

HV8560

HV8560.The geoid height was determined by GEOID09.

HV8560

HV8560.The dynamic height is computed by dividing the NAVD 88

HV8560.geopotential number by the normal gravity value computed on the

HV8560.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

HV8560.degrees latitude (g = 980.6199 gals.).

HV8560

HV8560.The modeled gravity was interpolated from observed gravity values.

HV8560

HV8560; North East Units Scale Factor Converg.

HV8560;SPC VA N - 2,137,200.626 3,613,562.685 MT 0.99996012 +0 49 01.4

HV8560;SPC VA N - 7,011,799.05 11,855,496.91 sFT 0.99996012 +0 49 01.4

HV8560;SPC MD - 136,413.365 383,441.221 MT 0.99994991 -0 07 11.3

HV8560;SPC MD - 447,549.52 1,258,006.74 sFT 0.99994991 -0 07 11.3

HV8560;UTM 18 - 4,307,452.057 309,998.930 MT 1.00004455 -1 22 33.8

HV8560

HV8560! - Elev Factor x Scale Factor = Combined Factor

HV8560!SPC VA N - 0.99998581 x 0.99996012 = 0.99994593

HV8560!SPC MD - 0.99998581 x 0.99994991 = 0.99993572

HV8560!UTM 18 - 0.99998581 x 1.00004455 = 1.00003036

HV8560

HV8560: Primary Azimuth Mark Grid Az

HV8560:SPC VA N - FC GPS 09 134 32 36.6

HV8560:SPC MD - FC GPS 09 135 28 49.3

HV8560:UTM 18 - FC GPS 09 136 44 11.8

HV8560

HV8560|-----|



HV8560 | PID Reference Object Distance Geod. Az |  
 HV8560 | dddmmss.s |  
 HV8560 | AA2672 FC GPS 09 APPROX. 0.5 KM 1352138.0 |  
 HV8560 |-----|

HV8560

HV8560 SUPERSEDED SURVEY CONTROL

HV8560

HV8560 ELLIP H (05/17/02) 90.483 (m) GP( ) 4 2  
 HV8560 NAD 83(1993)- 38 53 43.48527(N) 077 11 27.17029(W) AD( ) 1  
 HV8560 ELLIP H (05/30/95) 90.469 (m) GP( ) 4 2  
 HV8560 NAD 83(1993)- 38 53 43.48499(N) 077 11 27.17040(W) AD( ) 2  
 HV8560 NAD 83(1991)- 38 53 43.48382(N) 077 11 27.17295(W) AD( ) 2  
 HV8560 NAD 83(1986)- 38 53 43.48367(N) 077 11 27.18251(W) AD( ) 2  
 HV8560 NGVD 29 (05/30/95) 122.51 (m) 401.9 (f) LEVELING 3

HV8560

HV8560.Superseded values are not recommended for survey control.  
 HV8560.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 HV8560.See file dsdata.txt to determine how the superseded data were derived.

HV8560

HV8560\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ0999807452(NAD 83)

HV8560\_MARKER: DE = TRAVERSE STATION DISK

HV8560\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

HV8560\_SP\_SET: CONCRETE POST

HV8560\_STAMPING: MASON 2 1975

HV8560\_MARK LOGO: VA-059

HV8560\_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT

HV8560\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

HV8560+STABILITY: SURFACE MOTION

HV8560\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

HV8560+SATELLITE: SATELLITE OBSERVATIONS - March 10, 1994

HV8560

HV8560 HISTORY	- Date	Condition	Report By
HV8560 HISTORY	- 1976	MONUMENTED	VA-059
HV8560 HISTORY	- 1976	GOOD	VA-059
HV8560 HISTORY	- 19920122	GOOD	MSI
HV8560 HISTORY	- 19940310	GOOD	GEOMET
HV8560 HISTORY	- 19991014	GOOD	NGS
HV8560 HISTORY	- 20050410	GOOD	GEOCAC

HV8560

HV8560 STATION DESCRIPTION

HV8560

HV8560'DESCRIBED BY FAIRFAX COUNTY VIRGINIA 1976 (WTL)  
 HV8560'THE STATION IS LOCATED ABOUT 1.5 MILES SOUTHEAST OF THE INTERSECTION  
 HV8560'OF LEE HIGHWAY AND LEESBURG PIKE IN FALLS CHURCH AND 15 2.7 MILES  
 HV8560'NORTHWEST OF TYSONS CORNER ON THE PROPERTY OF THE GEORGE MASON  
 HV8560'HIGHSCHOOL. SEE FAIRFAX COUNTY TAX MAP 40-3.  
 HV8560'  
 HV8560'TO REACH THE STATION FROM THE INTERSECTION OF BELTWAY, I-495 AND  
 HV8560'LEESBURG PIKE, ROUTE 7, PROCEED SOUTHEASTERLY ALONG LEESBURG PIKE FOR  
 HV8560'1.7 MILES TO THE ENTRANCE TO GEORGE MASON HIGHSCHOOL ON THE LEFT.  
 HV8560'TURN INTO THE HIGH SCHOOL AND FOLLOW THE ASPHALT DRIVE AROUND THE  
 HV8560'FRONT OF THE SCHOOL UNTIL DIRECTLY BETWEEN THE BACK ENTRANCE TO THE  
 HV8560'AUDITORIUM AND PARALLEL WITH LEESBURG PIKE. THE MONUMENT MASON-2 IS  
 HV8560'TO THE RIGHT BETWEEN THE ASPHALT DIRVE AND LEESBURG PIKE.  
 HV8560'  
 HV8560'THE STATION IS A STANDARD FAIRFAX COUNTY VIRGINIA DISK STAMPED---  
 HV8560'MASON-2 1975--- SET INTO THE TOP OF A ROUND CONCRETE MONUMENT  
 HV8560'FLUSH WITH GROUND LOCATED 26.90 FEET E FROM THE CONCRETE BASE OF A  
 HV8560'LIGHT POLE AND 124 FEET NE FROM THE CENTERLINE OF US ROUTE 7.  
 HV8560'  
 HV8560'REFERENCE MARK NO. 01 IS A CHISELED X IN THE CONCRETE BASE OF A LIGHT  
 HV8560'POLE LOCATED 110 FEET NE FROM THE CENTERLINE OF US ROUTE 7.  
 HV8560'



HV8560'REFERENCE MARK NO. 02 IS A CHISELED X IN A CONCRETE SIDEWALK AT THE HV8560'INTERSECTION OF THE SIDEWALK AND THE ASPHALT DRIVE WHICH PASSES THE HV8560'ADUITORIUM AND PARALLELS LEESBURG PIKE. LOCATED 129 FEET NE FROM THE HV8560'CENTERLINE OF US ROUTE 7. AND 40 FEET N FROM RM 1.

HV8560

HV8560 STATION RECOVERY (1976)

HV8560

HV8560'RECOVERY NOTE BY FAIRFAX COUNTY VIRGINIA 1976

HV8560'RECOVERED IN GOOD CONDITION.

HV8560

HV8560 STATION RECOVERY (1992)

HV8560

HV8560'RECOVERY NOTE BY MEASUREMENT SCIENCE INCORPORATED 1992

HV8560'THE STATION IS LOCATED ABOUT 1.5 MILES (2.4 KM) SOUTHEAST OF THE

HV8560'INTERSECTION OF LEE HIGHWAY AND LEESBURG PIKE IN FALLS CHURCH AND 15

HV8560'2.7 MILES (4.3 KM) NORTHWEST OF TYSONS CORNER ON THE PROPERTY OF THE

HV8560'GEORGE MASON HIGH SCHOOL. SEE FAIRFAX COUNTY TAX MAP 40-3. TO REACH

HV8560'THE STATION FROM THE INTERSECTION OF BELTWAY, I-495 AND LEESBURG

HV8560'PIKE, ROUTE 7, PROCEED SOUTHEASTERLY ALONG LEESBURG PIKE FOR 1.7

HV8560'MILES (2.7 KM) TO THE ENTRANCE TO GEORGE MASON HIGH SCHOOL ON THE

HV8560'LEFT. TURN INTO THE HIGH SCHOOL AND FOLLOW THE ASPHALT DRIVE AROUND

HV8560'THE FRONT OF THE SCHOOL UNTIL DIRECTLY BETWEEN THE BACK ENTRANCE TO

HV8560'THE AUDITORIUM AND PARALLEL WITH LEESBURG PIKE, BETWEEN THE ASPHALT

HV8560'DRIVE AND LEESBURG PIKE, IN TOP OF A ROUND CONCRETE MONUMENT FLUSH

HV8560'WITH GROUND, 26.9 FEET (8.20 M) E OF THE CONCRETE BASE OF A LIGHT

HV8560'POLE, AND 124.0 FEET (37.8 M) NE FROM THE CENTERLINE OF US ROUTE 7.

HV8560

HV8560 STATION RECOVERY (1994)

HV8560

HV8560'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994 (DAR)

HV8560'RECOVERED AS DESCRIBED.

HV8560

HV8560 STATION RECOVERY (1999)

HV8560

HV8560'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1999 (CG)

HV8560'NOT GOOD FOR GPS. STAMPED NO MASON 2 1977.

HV8560

HV8560 STATION RECOVERY (2005)

HV8560

HV8560'RECOVERY NOTE BY GEOCACHING 2005 (APC)

HV8560'FOUND GENERALLY AS DESCRIBED. THE CONCRETE BASE OF A LIGHT POST

HV8560'MENTIONED IN THE 1976 DESCRIPTION WAS OBSERVED FLUSH WITH THE GROUND

HV8560'SURFACE, BUT THE LIGHT POLE HAS BEEN REMOVED.

HV8560'

HV8560'THE STATION DISK IS ABOUT 13 FEET ESE OF A DEAD DOUBLE TREE.

HV9516 \*\*\*\*\*

HV9516 DESIGNATION - V 1765

HV9516 PID - HV9516

HV9516 STATE/COUNTY- VA/C OF FALLS CHURCH

HV9516 USGS QUAD - FALLS CHURCH (1994)

HV9516

HV9516 \*CURRENT SURVEY CONTROL

HV9516

HV9516\* NAD 83(2007)- 38 52 57.35502(N) 077 11 01.95538(W) ADJUSTED

HV9516\* NAVD 88 - 93.840 (meters) 307.87 (feet) ADJUSTED

HV9516

HV9516 EPOCH DATE - 2002.00

HV9516 X - 1,102,807.489 (meters) COMP

HV9516 Y - -4,847,710.468 (meters) COMP

HV9516 Z - 3,982,218.792 (meters) COMP

HV9516 LAPLACE CORR- -2.24 (seconds) DEFLECO9

HV9516 ELLIP HEIGHT- 61.961 (meters) (02/10/07) ADJUSTED



HV9516 GEOID HEIGHT- -31.88 (meters) GEOID09  
 HV9516 DYNAMIC HT - 93.788 (meters) 307.70 (feet) COMP  
 HV9516  
 HV9516 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----  
 HV9516 Type PID Designation North East Ellip  
 HV9516 -----  
 HV9516 NETWORK HV9516 V 1765 0.71 0.61 2.06  
 HV9516 -----  
 HV9516 MODELED GRAV- 980,073.8 (mgal) NAVD 88  
 HV9516  
 HV9516 VERT ORDER - THIRD  
 HV9516  
 HV9516.The horizontal coordinates were established by GPS observations  
 HV9516.and adjusted by the National Geodetic Survey in February 2007.  
 HV9516  
 HV9516.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).  
 HV9516.See National Readjustment for more information.  
 HV9516.The horizontal coordinates are valid at the epoch date displayed above.  
 HV9516.The epoch date for horizontal control is a decimal equivalence  
 HV9516.of Year/Month/Day.  
 HV9516  
 HV9516.The orthometric height was determined by differential leveling and  
 HV9516.adjusted in September 2004.  
 HV9516.No vertical observational check was made to the station.  
 HV9516  
 HV9516.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
 HV9516  
 HV9516.The Laplace correction was computed from DEFLEC09 derived deflections.  
 HV9516  
 HV9516.The ellipsoidal height was determined by GPS observations  
 HV9516.and is referenced to NAD 83.  
 HV9516  
 HV9516.The geoid height was determined by GEOID09.  
 HV9516  
 HV9516.The dynamic height is computed by dividing the NAVD 88  
 HV9516.geopotential number by the normal gravity value computed on the  
 HV9516.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 HV9516.degrees latitude (g = 980.6199 gals.).  
 HV9516  
 HV9516.The modeled gravity was interpolated from observed gravity values.  
 HV9516  
 HV9516; North East Units Scale Factor Converg.  
 HV9516;SPC VA N - 2,135,787.004 3,614,190.628 MT 0.99995906 +0 49 17.1  
 HV9516;SPC VA N - 7,007,161.20 11,857,557.09 sFT 0.99995906 +0 49 17.1  
 HV9516;UTM 18 - 4,306,015.322 310,572.371 MT 1.00004187 -1 22 16.6  
 HV9516  
 HV9516! - Elev Factor x Scale Factor = Combined Factor  
 HV9516!SPC VA N - 0.99999028 x 0.99995906 = 0.99994934  
 HV9516!UTM 18 - 0.99999028 x 1.00004187 = 1.00003215  
 HV9516  
 HV9516: Primary Azimuth Mark Grid Az  
 HV9516:SPC VA N - FC GPS 07 126 24 33.9  
 HV9516:UTM 18 - FC GPS 07 128 36 07.6  
 HV9516  
 HV9516|-----|  
 HV9516| PID Reference Object Distance Geod. Az |  
 HV9516| | dddmmss.s |  
 HV9516| AA2670 FC GPS 07 APPROX. 0.5 KM 1271351.0 |  
 HV9516|-----|  
 HV9516  
 HV9516 SUPERSEDED SURVEY CONTROL  
 HV9516  
 HV9516 ELLIP H (05/17/02) 61.986 (m) GP( ) 4 2



HV9516 NAD 83(1993)- 38 52 57.35526(N) 077 11 01.95535(W) AD( ) 1  
HV9516 ELLIP H (05/30/95) 61.976 (m) GP( ) 4 2  
HV9516 NGVD 29 (05/30/95) 94.1 (m) 309. (f) GPS OBS  
HV9516

HV9516.Superseded values are not recommended for survey control.  
HV9516.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
HV9516.See file dsdata.txt to determine how the superseded data were derived.  
HV9516

HV9516\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1057206015(NAD 83)

HV9516\_MARKER: DD = SURVEY DISK

HV9516\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

HV9516\_SP\_SET: CONCRETE POST

HV9516\_STAMPING: 50-2 V-1765 1991

HV9516\_MARK LOGO: VA-059

HV9516\_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT

HV9516\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

HV9516+STABILITY: SURFACE MOTION

HV9516\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

HV9516+SATELLITE: SATELLITE OBSERVATIONS - March 10, 1994

HV9516

HV9516 HISTORY	- Date	Condition	Report By
HV9516 HISTORY	- 1991	MONUMENTED	VA-059
HV9516 HISTORY	- 19940310	GOOD	GEOMET
HV9516 HISTORY	- 20030504	GOOD	GEOCAC

HV9516

#### STATION DESCRIPTION

HV9516

HV9516'DESCRIBED BY FAIRFAX COUNTY VIRGINIA 1991

HV9516'THE STATION IS LOCATED IN FALLS CHURCH VA. IT IS ABOUT 3.6 MILES  
HV9516'(5.8 KM) SE FROM TYSONS CORNER, 2.3 MILES (3.7 KM) NE FROM MERRIFIELD  
HV9516'AND 4.8 MILES (7.7 KM) SSE FROM MCLEAN. TO REACH THE STATION FROM  
HV9516'THE INTERSECTION OF LEE HIGHWAY (RT 29) AND GALLOWS RD. (RT 650) IN  
HV9516'MERRIFIELD, PROCEED EAST ON RT. 29 FOR 2.45 MILES (3.94 KM) TO  
HV9516'GEORGE MASON RD. THENCE LEFT ON GEORGE MASON RD FOR 0.25 MILES (0.40  
HV9516'KM) TO THE MONUMENT, AT THE INTERSECTION WITH SEATON LANE, IN FALLS  
HV9516'CHURCH, IN TOP OF A CONCRETE MONUMENT FLUSH WITH THE GROUND.

HV9516

HV9516 STATION RECOVERY (1994)

HV9516

HV9516'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994

HV9516'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
HV9516'THE STATION FROM THE INTERSECTION OF ROUTE 29 (LEE HIGHWAY) AND ROUTE  
HV9516'650 (GALLOWS ROAD) IN MERRIFIELD PROCEED EAST ALONG ROUTE 29 (LEE  
HV9516'HIGHWAY) 2.5 MILES (4.0 KM) TO ITS INTERSECTION WITH GEORGE MASON  
HV9516'ROAD. TURN LEFT AND PROCEED NORTH ALONG GEORGE MASON ROAD 0.4 MILE  
HV9516'(0.6 KM) TO ITS INTERSECTION WITH SEATON LANE AND THE STATION ON THE  
HV9516'NORTH SIDE OF THE INTERSECTION. THE STATION IS A STANDARD FAIRFAX  
HV9516'COUNTY DISK SET IN THE TOP OF A CONCRETE MONUMENT FLUSH WITH THE  
HV9516'GROUND AND IS STAMPED 50-2 V-1765 1991. THE STATION IS 12.0 FEET (3.7  
HV9516'M) NORTHWEST FROM THE CENTER OF A STORM DRAIN, 58.0 FEET (17.7 M)  
HV9516'SOUTHWEST FROM POWER POLE NUMBER H, AND 25.0 FEET (7.6 M) NORTHEAST  
HV9516'FROM THE CENTER OF THE INTERSECTION OF SEATON LANE AND GEORGE MASON  
HV9516'ROAD.

HV9516

HV9516 STATION RECOVERY (2003)

HV9516

HV9516'RECOVERY NOTE BY GEOCACHING 2003 (APC)

HV9516'STATION LOCATED IN FRONT OF RESIDENCE AT 1000 SEATON LANE, NEAR GATE  
HV9516'IN WOODEN FENCE, BETWEEN WOODEN FENCE AND PUBLIC SIDEWALK. 1994  
HV9516'RECOVERY NOTE INCORRECTLY GIVES DISTANCE AND DIRECTION FROM POWER POLE  
HV9516'H (ALSO LABELED AS QE12). DISTANCE AND DIRECTION SHOULD ACTUALLY BE  
HV9516'MEASURED FROM AN UNLABELED POWER POLE.



HV9517 \*\*\*\*\*

HV9517 DESIGNATION - V 1766

HV9517 PID - HV9517

HV9517 STATE/COUNTY- VA/FAIRFAX

HV9517 USGS QUAD - FALLS CHURCH (1994)

HV9517

HV9517 \*CURRENT SURVEY CONTROL

---

HV9517\* NAD 83(1986)- 38 52 40. (N) 077 10 21. (W) SCALED

HV9517\* NAVD 88 - 93.674 (meters) 307.33 (feet) ADJUSTED

---

HV9517 GEOID HEIGHT- -31.91 (meters) GEOID09

HV9517 DYNAMIC HT - 93.622 (meters) 307.16 (feet) COMP

HV9517 MODELED GRAV- 980,075.0 (mgal) NAVD 88

HV9517

HV9517 VERT ORDER - THIRD

HV9517

HV9517.The horizontal coordinates were scaled from a topographic map and have  
 HV9517.an estimated accuracy of +/- 6 seconds.

HV9517

HV9517.The orthometric height was determined by differential leveling and  
 HV9517.adjusted in September 2004.

HV9517.No vertical observational check was made to the station.

HV9517

HV9517.The geoid height was determined by GEOID09.

HV9517

HV9517.The dynamic height is computed by dividing the NAVD 88  
 HV9517.geopotential number by the normal gravity value computed on the  
 HV9517.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
 HV9517.degrees latitude (g = 980.6199 gals.).

HV9517

HV9517.The modeled gravity was interpolated from observed gravity values.

HV9517

HV9517;	North	East	Units	Estimated Accuracy
HV9517;SPC VA N	- 2,135,270.	3,615,190.	MT	(+/- 180 meters Scaled)

HV9517

HV9517 SUPERSEDED SURVEY CONTROL

HV9517

HV9517.No superseded survey control is available for this station.

HV9517

HV9517\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ115054(NAD 83)

HV9517\_MARKER: DD = SURVEY DISK

HV9517\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

HV9517\_SP\_SET: CONCRETE POST

HV9517\_STAMPING: FAIRFAX COUNTY SURVEY MONUMENT 50-2 V 1766 1991

HV9517\_MARK LOGO: VA-059

HV9517\_MAGNETIC: R = STEEL ROD IMBEDDED IN MONUMENT

HV9517\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
 HV9517+STABILITY: SURFACE MOTION

HV9517\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
 HV9517+SATELLITE: SATELLITE OBSERVATIONS - 1991

HV9517

HV9517 HISTORY	- Date	Condition	Report By
HV9517 HISTORY	- 1991	MONUMENTED	VA-059
HV9517 HISTORY	- 20060409	GOOD	GEOCAC

HV9517

HV9517 STATION DESCRIPTION

HV9517

HV9517'DESCRIBED BY FAIRFAX COUNTY VIRGINIA 1991

HV9517'THE STATION IS LOCATED IN FAIRFAX COUNTY VA. IT IS ABOUT 3.0 MILES  
 HV9517'(4.8 KM) ENE FROM MERRIFIELD, 4.0 MILES (6.4 KM) SSE FROM MCLEAN AND  
 HV9517'1.0 MILES (1.6 KM) WNW FROM SEVEN CORNERS. TO REACH FROM THE  
 HV9517'INTERSECTION OF LEE HIGHWAY (RT 29) AND GALLOWS RD (RT 650) IN



HV9517'MERRIFIELD, PROCEED EAST ON RT 29 FOR 2.85 MILES (4.59 KM) TO DOUGLAS HV9517'AVE.RIGHT. THENCE RIGHT ON DOUGLAS AVE FOR 0.1 MILES (0.2 KM) TO HV9517'BRICE AVE. THENCE RIGHT ON BRICE AVE FOR 0.05 MILES (0.08 KM) TO THE HV9517'MONUMENT ON THE LEFT, IN TOP OF A CONCRETE MONUMENT FLUSH WITH HV9517'GROUND.

HV9517

HV9517 STATION RECOVERY (2006)

HV9517

HV9517'RECOVERY NOTE BY GEOCACHING 2006 (APC)

HV9517'STATION IS LOCATED IN FRONT OF AN 1-STORY, 8-UNIT APARTMENT BUILDING HV9517'ON THE SOUTHEAST CORNER OF BRICE STREET AND ANNANDALE ROAD, HOUSE HV9517'NUMBER 2761.

HV9517'

HV9517'STATION DISK IS SET IN CONCRETE IN THE LAWN, ABOUT 3.6 FEET SOUTH OF HV9517'THE FACE OF THE CONCRETE CURB AND ABOUT 2.6 FEET WEST OF THE WEST EDGE HV9517'OF A CONCRETE SIDEWALK. IT IS APPROXIMATELY 64 FEET WEST OF POLE UC11 HV9517'1051.

HV9517'

HV9517'TO REACH STATION FROM THE INTERSECTION OF U.S. 29 AND STATE HIGHWAY 7 HV9517'IN FALLS CHURCH, GO SOUTHWEST ON SOUTHBOUND U.S. 29 ABOUT 0.15 MILES HV9517'TO ANNANDALE ROAD. TURN LEFT ON ANNANDALE ROAD AND GO SOUTH ABOUT 0.17 HV9517'MILES TO BRICE STREET. TURN LEFT ONTO BRICE STREET. THE STATION WILL HV9517'BE ON THE RIGHT SIDE OF BRICE STREET IN FRONT OF THE CORNER BUILDING.



## NGS Falls Church:

```

AA2664 *****
AA2664 DESIGNATION - FC GPS 01
AA2664 PID - AA2664
AA2664 STATE/COUNTY- VA/C OF FALLS CHURCH
AA2664 USGS QUAD - FALLS CHURCH (1994)
AA2664
AA2664 *CURRENT SURVEY CONTROL
AA2664
AA2664* NAD 83(2007)- 38 53 07.44670(N) 077 10 21.14002(W) ADJUSTED
AA2664* NAVD 88 - 109.425 (meters) 359.01 (feet) ADJUSTED
AA2664
AA2664 EPOCH DATE - 2002.00
AA2664 X - 1,103,726.047 (meters) COMP
AA2664 Y - -4,847,313.500 (meters) COMP
AA2664 Z - 3,982,470.819 (meters) COMP
AA2664 LAPLACE CORR- -2.16 (seconds) DEFLECO9
AA2664 ELLIP HEIGHT- 77.546 (meters) (02/10/07) ADJUSTED
AA2664 GEOID HEIGHT- -31.89 (meters) GEOID09
AA2664 DYNAMIC HT - 109.365 (meters) 358.81 (feet) COMP
AA2664
AA2664 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----
AA2664 Type PID Designation North East Ellip
AA2664 -----
AA2664 NETWORK AA2664 FC GPS 01 0.78 0.69 2.08
AA2664 -----
AA2664 MODELED GRAV- 980,075.3 (mgal) NAVD 88
AA2664
AA2664 VERT ORDER - THIRD
AA2664
AA2664.The horizontal coordinates were established by GPS observations
AA2664.and adjusted by the National Geodetic Survey in February 2007.
AA2664
AA2664.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
AA2664.See National Readjustment for more information.
AA2664.The horizontal coordinates are valid at the epoch date displayed above.
AA2664.The epoch date for horizontal control is a decimal equivalence
AA2664.of Year/Month/Day.
AA2664
AA2664.The orthometric height was determined by differential leveling and
AA2664.adjusted in September 2004.
AA2664.No vertical observational check was made to the station.
AA2664
AA2664.The X, Y, and Z were computed from the position and the ellipsoidal ht.
AA2664
AA2664.The Laplace correction was computed from DEFLECO9 derived deflections.
AA2664
AA2664.The ellipsoidal height was determined by GPS observations
AA2664.and is referenced to NAD 83.
AA2664
AA2664.The geoid height was determined by GEOID09.
AA2664
AA2664.The dynamic height is computed by dividing the NAVD 88
AA2664.geopotential number by the normal gravity value computed on the
AA2664.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AA2664.degrees latitude (g = 980.6199 gals.).
AA2664
AA2664.The modeled gravity was interpolated from observed gravity values.
AA2664
AA2664; North East Units Scale Factor Converg.
AA2664;SPC VA N - 2,136,112.319 3,615,169.743 MT 0.99995929 +0 49 42.6
AA2664;SPC VA N - 7,008,228.50 11,860,769.40 sFT 0.99995929 +0 49 42.6

```



AA2664;UTM 18 - 4,306,302.961 311,563.296 MT 1.00003726 -1 21 51.3

AA2664

AA2664! - Elev Factor x Scale Factor = Combined Factor

AA2664!SPC VA N - 0.99998783 x 0.99995929 = 0.99994712

AA2664!UTM 18 - 0.99998783 x 1.00003726 = 1.00002509

AA2664

AA2664: Primary Azimuth Mark Grid Az

AA2664:SPC VA N - FC GPS 02 346 53 47.3

AA2664:UTM 18 - FC GPS 02 349 05 21.2

AA2664

AA2664|-----|

AA2664| PID Reference Object Distance Geod. Az |

AA2664| dddmss.s |

AA2664| AA2665 FC GPS 02 APPROX. 0.6 KM 3474329.9 |

AA2664|-----|

AA2664

AA2664 SUPERSEDED SURVEY CONTROL

AA2664

AA2664 ELLIP H (05/17/02) 77.590 (m) GP( ) 4 2

AA2664 NAD 83(1993)- 38 53 07.44692(N) 077 10 21.13993(W) AD( ) 1

AA2664 ELLIP H (05/30/95) 77.572 (m) GP( ) 4 2

AA2664 NGVD 29 (05/30/95) 109.64 (m) 359.7 (f) LEVELING 3

AA2664

AA2664.Superseded values are not recommended for survey control.

AA2664.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.

AA2664.See file dsdata.txt to determine how the superseded data were derived.

AA2664

AA2664\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1156306302(NAD 83)

AA2664\_MARKER: DD = SURVEY DISK

AA2664\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AA2664\_STAMPING: FC GPS NO 01 1994

AA2664\_MARK LOGO: VA-059

AA2664\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

AA2664\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AA2664+STABILITY: SURFACE MOTION

AA2664\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AA2664+SATELLITE: SATELLITE OBSERVATIONS - March 10, 1994

AA2664

AA2664 HISTORY - Date Condition Report By

AA2664 HISTORY - 1994 MONUMENTED GEOMET

AA2664 HISTORY - 19940310 GOOD GEOMET

AA2664 HISTORY - 20000616 GOOD GEOMET

AA2664 HISTORY - 20020905 GOOD GEOCAC

AA2664

AA2664 STATION DESCRIPTION

AA2664

AA2664'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)

AA2664'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH

AA2664'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND

AA2664'ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7 (BROAD STREET)

AA2664'APPROXIMATELY 0.2 MILE (0.3 KM) TO ITS INTERSECTION WITH LITTLE FALLS

AA2664'ROAD. TURN RIGHT AND PROCEED NORTHEAST ALONG LITTLE FALLS ROAD 0.08

AA2664'MILE (0.13 KM) TO ITS INTERSECTION WITH PARK AVENUE. TURN LEFT AND

AA2664'PROCEED TO THE FIRST RIGHT INTO A PARKING AREA TO CITY HALL AND THE

AA2664'STATION IS NEAR THE FLAGPOLE. THE STATION IS A 3.5 INCH BRASS FAIRFAX

AA2664'COUNTY DISK SET IN THE TOP OF A 10 INCH DIAMETER CONCRETE MONUMENT

AA2664'FLUSH WITH THE GROUND AND IS STAMPED FC GPS NO. 01 1994. THE STATION

AA2664'IS 13.8 FEET (4.2 M) NORTHWEST FROM THE FLAGPOLE, 68.7 FEET (20.9 M)

AA2664'SOUTHEAST FROM THE WEST INTERIOR CORNER OF THE CITY HALL BUILDING, AND

AA2664'75.7 FEET (23.1 M) SOUTHEAST FROM THE EAST INTERIOR CORNER OF THE CITY

AA2664'HALL BUILDING.

AA2664

AA2664 STATION RECOVERY (1994)



AA2664

AA2664'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2664'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
AA2664'

AA2664'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2664'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7  
AA2664'(BROAD STREET) APPROXIMATELY 0.2 MILES (0.3 KM) TO ITS INTERSECTION  
AA2664'WITH LITTLE FALLS STREET. TURN RIGHT AND PROCEED NORTHEAST ALONG  
AA2664'LITTLE FALLS STREET 0.08 MILES (0.13 KM) TO ITS INTERSECTION WITH PARK  
AA2664'AVENUE. TURN LEFT AND PROCEED TO THE FIRST RIGHT INTO A PARKING AREA  
AA2664'TO CITY HALL AND THE STATION IS NEAR THE FLAG POLE.

AA2664'

AA2664'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2664'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2664'STAMPED FC GPS NO. 01 1994.

AA2664'

AA2664'THE STATION IS 13.1 FEET (4.0 M) NORTHWEST FROM THE FLAG POLE, 68.7  
AA2664'FEET (20.9 M) SOUTHEAST FROM THE WEST INTERIOR CORNER OF THE CITY HALL  
AA2664'BUILDING, AND 75.7 FEET (23.1 M) SOUTHEAST FROM THE EAST INTERIOR  
AA2664'CORNER OF THE CITY HALL BUILDING.

AA2664

AA2664 STATION RECOVERY (2000)

AA2664

AA2664'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 2000 (CCG)  
AA2664'GOOD.

AA2664

AA2664 STATION RECOVERY (2002)

AA2664

AA2664'RECOVERY NOTE BY GEOCACHING 2002 (APC)  
AA2664'FLAGPOLE MENTIONED IN 1994 REPORT IS THE MIDDLE OF THREE POLES LOCATED  
AA2664'ACROSS THE PARKING LOT FROM THE SOUTH FACADE OF THE FALLS CHURCH CITY  
AA2664'HALL.

1 National Geodetic Survey, Retrieval Date = FEBRUARY 8, 2011

AA2665 \*\*\*\*\*

AA2665 DESIGNATION - FC GPS 02

AA2665 PID - AA2665

AA2665 STATE/COUNTY- VA/C OF FALLS CHURCH

AA2665 USGS QUAD - FALLS CHURCH (1994)

AA2665

AA2665 \*CURRENT SURVEY CONTROL

AA2665

AA2665\* NAD 83(2007)- 38 53 27.52977(N) 077 10 26.73125(W) ADJUSTED

AA2665\* NAVD 88 - 100.067 (meters) 328.30 (feet) ADJUSTED

AA2665

AA2665 EPOCH DATE - 2002.00

AA2665 X - 1,103,506.723 (meters) COMP

AA2665 Y - -4,846,957.214 (meters) COMP

AA2665 Z - 3,982,946.999 (meters) COMP

AA2665 LAPLACE CORR- -2.18 (seconds) DEFLEC09

AA2665 ELLIP HEIGHT- 68.190 (meters) (02/10/07) ADJUSTED

AA2665 GEOID HEIGHT- -31.88 (meters) GEOID09

AA2665 DYNAMIC HT - 100.012 (meters) 328.12 (feet) COMP

AA2665

AA2665 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

AA2665 Type PID Designation North East Ellip

AA2665

AA2665 NETWORK AA2665 FC GPS 02 0.86 0.74 2.25

AA2665

AA2665 MODELED GRAV- 980,075.6 (mgal) NAVD 88

AA2665

AA2665 VERT ORDER - THIRD

AA2665

AA2665.The horizontal coordinates were established by GPS observations





AA2665\_MARK LOGO: VA-059  
AA2665\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
AA2665\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
AA2665+STABILITY: SURFACE MOTION  
AA2665\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
AA2665+SATELLITE: SATELLITE OBSERVATIONS - December 31, 2006

AA2665  
AA2665 HISTORY - Date Condition Report By  
AA2665 HISTORY - 1994 MONUMENTED GEOMET  
AA2665 HISTORY - 19940310 GOOD GEOMET  
AA2665 HISTORY - 20020807 GOOD INDIV  
AA2665 HISTORY - 20061231 GOOD USPSQD

AA2665  
AA2665 STATION DESCRIPTION  
AA2665

AA2665'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2665'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
AA2665'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
AA2665'ROUTE 7 (BROAD STREET) PROCEED NORTHEAST ALONG ROUTE 29 (NORTH  
AA2665'WASHINGTON STREET) 0.2 MILE (0.3 KM) TO ITS INTERSECTION WITH GREAT  
AA2665'FALLS STREET. TURN LEFT AND PROCEED NORTHWEST ALONG GREAT FALLS  
AA2665'STREET 0.5 MILE (0.8 KM) TO ITS INTERSECTION WITH LINCOLN AVENUE AND  
AA2665'THE STATION ON THE LEFT IN THE NORTHWEST CORNER OF THE INTERSECTION.  
AA2665'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2665'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2665'STAMPED FC GPS NO. 02 1994. THE STATION IS 32.6 FEET (9.9 M) SOUTHWEST  
AA2665'FROM THE CENTERLINE OF WEST GREAT FALLS STREET, 5.3 FEET (1.6 M) WEST  
AA2665'FROM A FENCE CORNER, AND 29.2 FEET (8.9 M) NORTHEAST FROM A FENCE  
AA2665'CORNER.

AA2665  
AA2665 STATION RECOVERY (1994)  
AA2665

AA2665'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2665'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
AA2665'  
AA2665'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2665'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHEAST ALONG ROUTE 29  
AA2665'(NORTH WASHINGTON STREET) 0.2 MILES (0.3 KM) TO ITS INTERSECTION WITH  
AA2665'GREAT FALLS STREET. TURN LEFT AND PROCEED NORTHWEST ALONG GREAT FALLS  
AA2665'STREET 0.5 MILES (0.8 KM) TO ITS INTERSECTION WITH LINCOLN AVENUE AND  
AA2665'THE STATION ON THE LEFT IN THE NORTHWEST CORNER OF THE INTERSECTION.  
AA2665'

AA2665'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2665'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2665'STAMPED FC GPS NO. 02 1994.  
AA2665'  
AA2665'THE STATION IS 32.6 FEET (9.9 M) SOUTHWEST FROM THE CENTERLINE OF WEST  
AA2665'GREAT FALLS STREET, 5.3 FEET (1.6 M) WEST FROM A FENCE CORNER, AND  
AA2665'29.2 FEET (8.9 M) NORTHEAST FROM A FENCE CORNER.

AA2665  
AA2665 STATION RECOVERY (2002)  
AA2665

AA2665'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2002 (APC)  
AA2665'STATION IS INSIDE PARK FENCE, 40 INCHES FROM TREE.

AA2665  
AA2665 STATION RECOVERY (2006)  
AA2665

AA2665'RECOVERY NOTE BY US POWER SQUADRON 2006 (TDM)  
AA2665'THE TREE MENTIONED IN THE 2002 STATION RECOVERY HAS BEEN CUT DOWN,  
AA2665'LEAVING THE STUMP FLUSH WITH THE GROUND.

AA2666 \*\*\*\*\*  
AA2666 DESIGNATION - FC GPS 03



AA2666 PID - AA2666  
AA2666 STATE/COUNTY- VA/C OF FALLS CHURCH  
AA2666 USGS QUAD - FALLS CHURCH (1994)  
AA2666  
AA2666 \*CURRENT SURVEY CONTROL  
AA2666

---

AA2666\* NAD 83(2007)- 38 53 00.26694(N) 077 10 25.15811(W) ADJUSTED  
AA2666\* NAVD 88 - 100.969 (meters) 331.26 (feet) ADJUSTED  
AA2666

---

AA2666 EPOCH DATE - 2002.00  
AA2666 X - 1,103,661.009 (meters) COMP  
AA2666 Y - -4,847,464.083 (meters) COMP  
AA2666 Z - 3,982,293.151 (meters) COMP  
AA2666 LAPLACE CORR- -2.17 (seconds) DEFLECO9  
AA2666 ELLIP HEIGHT- 69.065 (meters) (02/10/07) ADJUSTED  
AA2666 GEOID HEIGHT- -31.89 (meters) GEOID09  
AA2666 DYNAMIC HT - 100.913 (meters) 331.08 (feet) COMP  
AA2666

AA2666 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----  
AA2666 Type PID Designation North East Ellip  
AA2666 -----  
AA2666 NETWORK AA2666 FC GPS 03 0.86 0.74 2.27  
AA2666 -----  
AA2666 MODELED GRAV- 980,075.0 (mgal) NAVD 88  
AA2666  
AA2666 VERT ORDER - THIRD  
AA2666  
AA2666.The horizontal coordinates were established by GPS observations  
AA2666.and adjusted by the National Geodetic Survey in February 2007.  
AA2666  
AA2666.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).  
AA2666.See National Readjustment for more information.  
AA2666.The horizontal coordinates are valid at the epoch date displayed above.  
AA2666.The epoch date for horizontal control is a decimal equivalence  
AA2666.of Year/Month/Day.  
AA2666  
AA2666.The orthometric height was determined by differential leveling and  
AA2666.adjusted in September 2004.  
AA2666.No vertical observational check was made to the station.  
AA2666  
AA2666.Photographs are available for this station.  
AA2666  
AA2666.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AA2666  
AA2666.The Laplace correction was computed from DEFLECO9 derived deflections.  
AA2666  
AA2666.The ellipsoidal height was determined by GPS observations  
AA2666.and is referenced to NAD 83.  
AA2666  
AA2666.The geoid height was determined by GEOID09.  
AA2666  
AA2666.The dynamic height is computed by dividing the NAVD 88  
AA2666.geopotential number by the normal gravity value computed on the  
AA2666.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AA2666.degrees latitude (g = 980.6199 gals.).  
AA2666  
AA2666.The modeled gravity was interpolated from observed gravity values.  
AA2666  
AA2666;  
AA2666; North East Units Scale Factor Converg.  
AA2666;SPC VA N - 2,135,889.549 3,615,076.113 MT 0.99995913 +0 49 40.1  
AA2666;SPC VA N - 7,007,497.63 11,860,462.21 sFT 0.99995913 +0 49 40.1  
AA2666;UTM 18 - 4,306,083.919 311,461.203 MT 1.00003773 -1 21 53.6  
AA2666



AA2666! - Elev Factor x Scale Factor = Combined Factor  
AA2666!SPC VA N - 0.99998916 x 0.99995913 = 0.99994829  
AA2666!UTM 18 - 0.99998916 x 1.00003773 = 1.00002689  
AA2666  
AA2666|-----|  
AA2666| PID Reference Object Distance Geod. Az |  
AA2666| dddmmss.s |  
AA2666| AA2664 FC GPS 01 241.656 METERS 02337 |  
AA2666|-----|  
AA2666  
AA2666 SUPERSEDED SURVEY CONTROL  
AA2666  
AA2666 ELLIP H (05/17/02) 69.106 (m) GP( ) 4 2  
AA2666 NAD 83(1993)- 38 53 00.26716(N) 077 10 25.15802(W) AD( ) 1  
AA2666 ELLIP H (05/30/95) 69.090 (m) GP( ) 4 2  
AA2666 NGVD 29 (05/30/95) 101.18 (m) 332.0 (f) LEVELING 3  
AA2666  
AA2666.Superseded values are not recommended for survey control.  
AA2666.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AA2666.See file dsdata.txt to determine how the superseded data were derived.  
AA2666  
AA2666\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1146106083(NAD 83)  
AA2666\_MARKER: DD = SURVEY DISK  
AA2666\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
AA2666\_STAMPING: FC GPS NO. 03 1994  
AA2666\_MARK LOGO: VA-059  
AA2666\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
AA2666\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
AA2666+STABILITY: SURFACE MOTION  
AA2666\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
AA2666+SATELLITE: SATELLITE OBSERVATIONS - March 10, 1994  
AA2666  
AA2666 HISTORY - Date Condition Report By  
AA2666 HISTORY - 1994 MONUMENTED GEOMET  
AA2666 HISTORY - 19940310 GOOD GEOMET  
AA2666 HISTORY - 20050313 GOOD GEOCAC  
AA2666  
AA2666 STATION DESCRIPTION  
AA2666  
AA2666'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2666'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
AA2666'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
AA2666'ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7 (BROAD STREET)  
AA2666'0.2 MILE (0.3 KM) TO THE FALLS CHURCH POST OFFICE ON THE LEFT. TURN  
AA2666'LEFT INTO THE PARKING LOT TO THE STATION ON THE LEFT. THE STATION IS A  
AA2666'3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF A 10 INCH  
AA2666'DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS STAMPED FC GPS  
AA2666'NO. 03 1994. THE STATION IS 99.0 FEET (30.2 M) SOUTH FROM THE  
AA2666'NORTHEAST CORNER OF THE BUILDING, 87.9 FEET (26.8 M) SOUTHEAST FROM  
AA2666'THE SOUTHWEST CORNER OF THE BUILDING, AND 91.6 FEET (27.9 M) SOUTHWEST  
AA2666'FROM FACE OF CURB CORNER OF THE PARKING LOT.  
AA2666  
AA2666 STATION RECOVERY (1994)  
AA2666  
AA2666'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2666'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
AA2666'  
AA2666'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2666'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7  
AA2666'(BROAD STREET) 0.2 MILES (0.3 KM) TO THE FALLS CHURCH POST OFFICE ON  
AA2666'THE LEFT. TURN LEFT INTO THE PARKING LOT TO THE STATION ON THE LEFT.  
AA2666'  
AA2666'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF



AA2666'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2666'STAMPED FC GPS NO. 03 1994.

AA2666'

AA2666'THE STATION IS 99.0 FEET (30.2 M) SOUTHEAST FROM THE NORTHEAST CORNER  
AA2666'OF THE BUILDING, 87.9 FEET (26.8 M) SOUTHEAST FROM THE SOUTHWEST  
AA2666'CORNER OF THE BUILDING, AND 91.6 FEET (27.9 M) SOUTHWEST FROM FACE OF  
AA2666'CURB CORNER OF THE PARKING LOT.

AA2666

STATION RECOVERY (2005)

AA2666

AA2666'RECOVERY NOTE BY GEOCACHING 2005 (APC)

AA2666'STATION LOCATED AS DESCRIBED IN THE PARKING LOT OF THE FALLS CHURCH  
AA2666'POST OFFICE AND ABOUT SEVEN FEET NNW OF A METAL LIGHT POLE. IT IS THE  
AA2666'EASTERNMOST OF TWO SUCH POLES, AND THE FIRST ONE ENCOUNTERED WHEN  
AA2666'ENTERING THE PARKING LOT FROM BROAD STREET.

AA2666'

AA2666'STATION DISK IS ALSO ABOUT 6 INCHES NNW OF A TWO-INCH SQUARE STEEL  
AA2666'SIGNPOST NEAR THE END OF A SMALL ISLAND JUTTING INTO THE PARKING LOT.

AA2667 \*\*\*\*\*

AA2667 DESIGNATION - FC GPS 04

AA2667 PID - AA2667

AA2667 STATE/COUNTY- VA/C OF FALLS CHURCH

AA2667 USGS QUAD - FALLS CHURCH (1994)

AA2667

AA2667 \*CURRENT SURVEY CONTROL

AA2667

AA2667\* NAD 83(2007)- 38 53 30.51154(N) 077 11 11.66765(W) ADJUSTED

AA2667\* NAVD 88 - 107.078 (meters) 351.31 (feet) ADJUSTED

AA2667

AA2667 EPOCH DATE - 2002.00

AA2667 X - 1,102,439.160 (meters) COMP

AA2667 Y - -4,847,146.551 (meters) COMP

AA2667 Z - 3,983,022.983 (meters) COMP

AA2667 LAPLACE CORR- -2.27 (seconds) DEFLECO9

AA2667 ELLIP HEIGHT- 75.223 (meters) (02/10/07) ADJUSTED

AA2667 GEOID HEIGHT- -31.86 (meters) GEOID09

AA2667 DYNAMIC HT - 107.019 (meters) 351.11 (feet) COMP

AA2667

AA2667 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

AA2667 Type PID Designation North East Ellip

AA2667 -----

AA2667 NETWORK AA2667 FC GPS 04 0.82 0.71 2.12

AA2667 -----

AA2667 MODELED GRAV- 980,074.0 (mgal) NAVD 88

AA2667

AA2667 VERT ORDER - THIRD

AA2667

AA2667.The horizontal coordinates were established by GPS observations

AA2667.and adjusted by the National Geodetic Survey in February 2007.

AA2667

AA2667.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).

AA2667.See National Readjustment for more information.

AA2667.The horizontal coordinates are valid at the epoch date displayed above.

AA2667.The epoch date for horizontal control is a decimal equivalence

AA2667.of Year/Month/Day.

AA2667

AA2667.The orthometric height was determined by differential leveling and

AA2667.adjusted in September 2004.

AA2667.No vertical observational check was made to the station.

AA2667

AA2667.Photographs are available for this station.

AA2667





AA2667

AA2667 STATION DESCRIPTION

AA2667

AA2667'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2667'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA ABOUT  
AA2667'1.15 MILES (1.85 KM) NORTHWEST OF THE JUNCTION OF ROUTE 7 (BROAD  
AA2667'STREET) AND ROUTE 29 (WASHINGTON STREET) . TO REACH THE STATION FROM  
AA2667'THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND ROUTE 7 (BROAD  
AA2667'STREET) PROCEED NORTHWEST ALONG ROUTE 7 (BROAD STREET) 1.15 MILES  
AA2667'(1.85 KM) TO THE WASHINGTON AND OLD DOMINION RAILROAD TRAIL AND THE  
AA2667'STATION ON THE LEFT. THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY  
AA2667'DISK SET IN THE CONCRETE TRAFFIC ISLAND OF WASHINGTON AND OLD DOMINION  
AA2667'RAILROAD TRAIL AND IS STAMPED FC GPS NO. 04 1994. THE STATION IS 10.0  
AA2667'FEET (3.0 M) NORTHWEST FROM THE CORNER OF THE BRIDGE, 10.0 FEET (3.0  
AA2667'M) SOUTHEAST FROM THE CORNER OF THE BRIDGE AND 3.5 FEET (1.1 M)  
AA2667'SOUTHWEST FROM THE BRIDGE OVERPASS. THIS MONUMENT IS NOT TO BE USED  
AA2667'FOR SURVEYING PURPOSES, DUE TO SAFETY CONSIDERATION OF THE WASHINGTON  
AA2667'AND OLD DOMINION RAILROAD TRAIL USERS. IT IS FOR REFERENCE PURPOSES  
AA2667'ONLY, AND ANY USER ATTEMPTING TO USE IT FOR SURVEY WORK ASSUMES ALL  
AA2667'RISK ASSOCIATED WITH ITS USE. PLEASE USE FC GPS 09 FOR SURVEY WORK.  
AA2667'FC GPS 09 IS EASILY FOUND WITHIN APPROXIMATELY 20 METERS (65.6 FT) OF  
AA2667'FC GPS 04.

AA2667

AA2667 STATION RECOVERY (1994)

AA2667

AA2667'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2667'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA ABOUT  
AA2667'1.15 MILES (1.85 KM) NORTHWEST OF THE JUNCTION OF ROUTE 7 (BROAD  
AA2667'STREET) AND ROUTE 29 (WASHINGTON STREET).  
AA2667'  
AA2667'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2667'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7  
AA2667'(BROAD STREET) 1.15 MILES (1.85 KM) TO THE WASHINGTON AND OLD DOMINION  
AA2667'RAILROAD TRAIL AND THE STATION ON THE LEFT.  
AA2667'  
AA2667'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE  
AA2667'CONCRETE TRAFFIC ISLAND OF WASHINGTON AND OLD DOMINION RAILROAD TRAIL  
AA2667'AND IS STAMPED FC GPS NO. 04 1994.  
AA2667'  
AA2667'THE STATION IS 10.0 FEET (3.0 M) NORTHWEST FROM THE CORNER OF THE  
AA2667'BRIDGE, 10.0 FEET (3.0 M) SOUTHEAST FROM THE CORNER OF THE BRIDGE AND  
AA2667'3.5 FEET (1.1 M) SOUTHWEST FROM THE BRIDGE OVERPASS.

AA2667

AA2667'THIS MONUMENT IS NOT TO BE USED FOR SURVEYING PURPOSES, DUE TO SAFETY  
AA2667'CONSIDERATION OF THE WASHINGTON AND OLD DOMINION RAILROAD TRAIL USERS.  
AA2667'IT IS FOR REFERENCE PURPOSES ONLY, AND ANY USER ATTEMPTING TO USE IT  
AA2667'FOR SURVEY WORK ASSUMES ALL RISK ASSOCIATED WITH ITS USE. PLEASE USE  
AA2667'FC GPS 09 FOR SURVEY WORK. FC GPS 09 IS EASILY FOUND WITHIN  
AA2667'APPROXIMATELY 20 METERS (65.6 FT) OF FC GPS 04.

AA2667

AA2667 STATION RECOVERY (1999)

AA2667

AA2667'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1999 (BCL)  
AA2667'GOOD CONDITION.

AA2667

AA2667 STATION RECOVERY (2003)

AA2667

AA2667'RECOVERY NOTE BY GEOCACHING 2003 (APC)  
AA2667'RECOVERED IN GOOD CONDITION.

AA2667

AA2667 STATION RECOVERY (2006)

AA2667

AA2667'RECOVERY NOTE BY US POWER SQUADRON 2006 (TDM)



AA2667'RECOVERED IN GOOD CONDITION.

AA2668 \*\*\*\*\*

AA2668 DESIGNATION - FC GPS 05

AA2668 PID - AA2668

AA2668 STATE/COUNTY- VA/C OF FALLS CHURCH

AA2668 USGS QUAD - FALLS CHURCH (1994)

AA2668

\*CURRENT SURVEY CONTROL

AA2668

AA2668\* NAD 83(2007)- 38 53 10.56008(N) 077 09 48.59577(W) ADJUSTED

AA2668\* NAVD 88 - 88.077 (meters) 288.97 (feet) ADJUSTED

AA2668

AA2668 EPOCH DATE - 2002.00

AA2668 X - 1,104,473.747 (meters) COMP

AA2668 Y - -4,847,064.293 (meters) COMP

AA2668 Z - 3,982,532.121 (meters) COMP

AA2668 LAPLACE CORR- -2.14 (seconds) DEFLECO9

AA2668 ELLIP HEIGHT- 56.151 (meters) (02/10/07) ADJUSTED

AA2668 GEOID HEIGHT- -31.90 (meters) GEOID09

AA2668 DYNAMIC HT - 88.029 (meters) 288.81 (feet) COMP

AA2668

AA2668 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

AA2668 Type PID Designation North East Ellip

AA2668 -----

AA2668 NETWORK AA2668 FC GPS 05 0.76 0.67 2.02

AA2668 -----

AA2668 MODELED GRAV- 980,076.2 (mgal) NAVD 88

AA2668

AA2668 VERT ORDER - THIRD

AA2668

AA2668.The horizontal coordinates were established by GPS observations

AA2668.and adjusted by the National Geodetic Survey in February 2007.

AA2668

AA2668.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).

AA2668.See National Readjustment for more information.

AA2668.The horizontal coordinates are valid at the epoch date displayed above.

AA2668.The epoch date for horizontal control is a decimal equivalence

AA2668.of Year/Month/Day.

AA2668

AA2668.The orthometric height was determined by differential leveling and

AA2668.adjusted in September 2004.

AA2668

AA2668.Photographs are available for this station.

AA2668

AA2668.The X, Y, and Z were computed from the position and the ellipsoidal ht.

AA2668

AA2668.The Laplace correction was computed from DEFLECO9 derived deflections.

AA2668

AA2668.The ellipsoidal height was determined by GPS observations

AA2668.and is referenced to NAD 83.

AA2668

AA2668.The geoid height was determined by GEOID09.

AA2668

AA2668.The dynamic height is computed by dividing the NAVD 88

AA2668.geopotential number by the normal gravity value computed on the

AA2668.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45

AA2668.degrees latitude (g = 980.6199 gals.).

AA2668

AA2668.The modeled gravity was interpolated from observed gravity values.

AA2668

AA2668; North East Units Scale Factor Converg.

AA2668;SPC VA N - 2,136,219.692 3,615,952.601 MT 0.99995936 +0 50 02.9



AA2668;SPC VA N - 7,008,580.77 11,863,337.83 sFT 0.99995936 +0 50 02.9  
AA2668;UTM 18 - 4,306,380.308 312,349.749 MT 1.00003362 -1 21 30.9  
AA2668  
AA2668! - Elev Factor x Scale Factor = Combined Factor  
AA2668!SPC VA N - 0.99999119 x 0.99995936 = 0.99995055  
AA2668!UTM 18 - 0.99999119 x 1.00003362 = 1.00002481  
AA2668  
AA2668: Primary Azimuth Mark Grid Az  
AA2668:SPC VA N - FC GPS 01 262 11 25.2  
AA2668:UTM 18 - FC GPS 01 264 22 59.0  
AA2668  
AA2668|-----|  
AA2668| PID Reference Object Distance Geod. Az |  
AA2668| dddmmss.s |  
AA2668| AA2664 FC GPS 01 APPROX. 0.8 KM 2630128.1 |  
AA2668|-----|  
AA2668  
AA2668 SUPERSEDED SURVEY CONTROL  
AA2668  
AA2668 ELLIP H (05/17/02) 56.216 (m) GP( ) 4 2  
AA2668 NAD 83(1993)- 38 53 10.56033(N) 077 09 48.59568(W) AD( ) 1  
AA2668 ELLIP H (05/30/95) 56.188 (m) GP( ) 4 2  
AA2668 NGVD 29 (05/30/95) 88.29 (m) 289.7 (f) LEVELING 3  
AA2668  
AA2668.Superseded values are not recommended for survey control.  
AA2668.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AA2668.See file dsdata.txt to determine how the superseded data were derived.  
AA2668  
AA2668\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1234906380(NAD 83)  
AA2668\_MARKER: DD = SURVEY DISK  
AA2668\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
AA2668\_STAMPING: FC GPS NO. 05 1994  
AA2668\_MARK LOGO: VA-059  
AA2668\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
AA2668\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
AA2668+STABILITY: SURFACE MOTION  
AA2668\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
AA2668+SATELLITE: SATELLITE OBSERVATIONS - July 26, 2002  
AA2668  
AA2668 HISTORY - Date Condition Report By  
AA2668 HISTORY - 1994 MONUMENTED GEOMET  
AA2668 HISTORY - 19940310 GOOD GEOMET  
AA2668 HISTORY - 20020726 GOOD GEOMET  
AA2668 HISTORY - 20090102 GOOD GEOCAC  
AA2668  
AA2668 STATION DESCRIPTION  
AA2668  
AA2668'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2668'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
AA2668'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
AA2668'ROUTE 7 (BROAD STREET) PROCEED NORTHEAST ALONG ROUTE 29 (NORTH  
AA2668'WASHINGTON STREET) 0.5 MILE (0.8 KM) TO ITS INTERSECTION WITH GRESHAM  
AA2668'PLACE. THE STATION IS LOCATED ALONG A BRICK WALL IN THE SOUTHEAST  
AA2668'CORNER OF THE INTERSECTION. THE STATION IS A 3.5 INCH BRASS FAIRFAX  
AA2668'COUNTY DISK SET IN THE TOP OF A 10 INCH DIAMETER CONCRETE MONUMENT  
AA2668'FLUSH WITH THE GROUND AND IS STAMPED FC GPS NO. 05 1994. THE STATION  
AA2668'IS 25.2 FEET (7.7 M) SOUTHEAST FROM THE EDGE OF PAVEMENT OF NORTH  
AA2668'WASHINGTON STREET, 11.1 FEET (3.4 M) NORTHEAST FROM THE EDGE OF  
AA2668'PAVEMENT OF GRESHAM PLACE, AND 15.3 FEET (4.7 M) NORTHEAST FROM A FIRE  
AA2668'HYDRANT.  
AA2668  
AA2668 STATION RECOVERY (1994)  
AA2668



AA2668'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2668'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
AA2668'

AA2668'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2668'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHEAST ALONG ROUTE 29  
AA2668'(NORTH WASHINGTON STREET) 0.5 MILES (0.8 KM) TO ITS INTERSECTION WITH  
AA2668'GRESHAM PLACE. THE STATION IS LOCATED ALONG A BRICK WALL IN THE  
AA2668'SOUTHEAST CORNER OF THE INTERSECTION.  
AA2668'

AA2668'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2668'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2668'STAMPED FC GPS NO. 05 1994.

AA2668'  
AA2668'THE STATION IS 25.2 FEET (7.7 M) SOUTHEAST FROM THE EDGE OF PAVEMENT  
AA2668'OF NORTH WASHINGTON STREET, 11.1 FEET (3.4 M) NORTHEAST FROM THE EDGE  
AA2668'OF PAVEMENT OF GRESHAM PLACE, AND 15.3 FEET (4.7 M) NORTHEAST FROM A  
AA2668'FIRE HYDRANT.

AA2668  
AA2668 STATION RECOVERY (2002)

AA2668  
AA2668'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 2002 (BCL)  
AA2668'13.0' SOUTHEAST OF A STREET SIGN, 1.5' WEST OF A BRICK WALL.

AA2668  
AA2668 STATION RECOVERY (2009)

AA2668  
AA2668'RECOVERY NOTE BY GEOCACHING 2009 (APC)  
AA2668'RECOVERED IN GOOD CONDITION.

AA2669 \*\*\*\*\*

AA2669 DESIGNATION - FC GPS 06

AA2669 PID - AA2669

AA2669 STATE/COUNTY- VA/C OF FALLS CHURCH

AA2669 USGS QUAD - FALLS CHURCH (1994)

AA2669

AA2669 \*CURRENT SURVEY CONTROL

AA2669  
AA2669\* NAD 83(2007)- 38 53 11.84916(N) 077 11 26.99627(W) ADJUSTED

AA2669\* NAVD 88 - 99.252 (meters) 325.63 (feet) ADJUSTED

AA2669

AA2669 EPOCH DATE - 2002.00

AA2669 X - 1,102,157.690 (meters) COMP

AA2669 Y - -4,847,574.831 (meters) COMP

AA2669 Z - 3,982,570.114 (meters) COMP

AA2669 LAPLACE CORR- -2.23 (seconds) DEFLECO9

AA2669 ELLIP HEIGHT- 67.382 (meters) (02/10/07) ADJUSTED

AA2669 GEOID HEIGHT- -31.87 (meters) GEOID09

AA2669 DYNAMIC HT - 99.197 (meters) 325.45 (feet) COMP

AA2669

AA2669 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----

AA2669 Type PID Designation North East Ellip

AA2669 -----

AA2669 NETWORK AA2669 FC GPS 06 0.82 0.69 2.10

AA2669 -----

AA2669 MODELED GRAV- 980,073.0 (mgal) NAVD 88

AA2669

AA2669 VERT ORDER - THIRD

AA2669

AA2669.The horizontal coordinates were established by GPS observations

AA2669.and adjusted by the National Geodetic Survey in February 2007.

AA2669

AA2669.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).

AA2669.See National Readjustment for more information.

AA2669.The horizontal coordinates are valid at the epoch date displayed above.





AA2669  
 AA2669 HISTORY - Date Condition Report By  
 AA2669 HISTORY - 1994 MONUMENTED GEOMET  
 AA2669 HISTORY - 19940310 GOOD GEOMET  
 AA2669 HISTORY - 20010402 GOOD DEWDAV  
 AA2669 HISTORY - 20030504 GOOD GEOCAC  
 AA2669 HISTORY - 20071010 GOOD INDIV

AA2669  
 AA2669 STATION DESCRIPTION  
 AA2669

AA2669 DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
 AA2669 THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
 AA2669 THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
 AA2669 ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7 (BROAD STREET)  
 AA2669 1.0 MILE (1.6 KM) TO ITS INTERSECTION WITH WEST STREET. TURN LEFT AND  
 AA2669 PROCEED SOUTHWEST ALONG SOUTH WEST STREET 0.5 MILE (0.8 KM) TO ITS  
 AA2669 INTERSECTION WITH RANDOLPH STREET. TURN LEFT AND PROCEED SOUTHEAST  
 AA2669 ALONG RANDOLPH STREET 0.1 MILE (0.2 KM) TO ITS INTERSECTION WITH LYNN  
 AA2669 PLACE. TURN RIGHT AND PROCEED SOUTHWEST ALONG LYNN PLACE 0.05 MILE  
 AA2669 (0.08 KM) TO THE GATE OF ROBERTS PARK AND THE STATION LOCATED NEAR THE  
 AA2669 SHELTER AND AN OLD WATER FOUNTAIN. THE STATION IS A 3.5 INCH BRASS  
 AA2669 FAIRFAX COUNTY DISK SET IN THE TOP OF A 10 INCH DIAMETER CONCRETE  
 AA2669 MONUMENT FLUSH WITH THE GROUND AND IS STAMPED FC GPS NO. 06 1994. THE  
 AA2669 STATION IS 33.5 FEET (10.2 M) SOUTHWEST FROM THE GATE, 22.9 FEET (7.0  
 AA2669 M) NORTHEAST FROM THE SOUTHWEST CORNER OF THE SHELTER, 6.7 FEET (2.0  
 AA2669 M) SOUTHEAST FROM THE WATER FOUNTAIN, AND 19.8 FEET (6.0 M) SOUTHEAST  
 AA2669 FROM THE NORTHEAST CORNER OF THE SHELTER.

AA2669  
 AA2669 STATION RECOVERY (1994)  
 AA2669

AA2669 RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
 AA2669 THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
 AA2669  
 AA2669 TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
 AA2669 STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7  
 AA2669 (BROAD STREET) 1.0 MILES (1.6 KM) TO ITS INTERSECTION WITH WEST  
 AA2669 STREET. TURN LEFT AND PROCEED SOUTHWEST ALONG SOUTH WEST STREET 0.5  
 AA2669 MILES (0.8 KM) TO ITS INTERSECTION WITH RANDOLPH STREET. TURN LEFT  
 AA2669 AND PROCEED SOUTHEAST ALONG RANDOLPH STREET 0.1 MILES (0.2 KM) TO ITS  
 AA2669 INTERSECTION WITH LYNN PLACE. TURN RIGHT AND PROCEED SOUTHWEST ALONG  
 AA2669 LYNN PLACE 0.05 MILES (0.08 KM) TO THE GATE OF ROBERTS PARK AND THE  
 AA2669 STATION LOCATED NEAR THE SHELTER AND AN OLD WATER FOUNTAIN.  
 AA2669  
 AA2669 THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
 AA2669 A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
 AA2669 STAMPED FC GPS NO. 06 1994.  
 AA2669  
 AA2669 THE STATION IS 33.5 FEET (10.2 M) SOUTHWEST FROM THE GATE, 22.9 FEET  
 AA2669 (7.0 M) NORTHEAST FROM THE SOUTHWEST CORNER OF THE SHELTER, 6.7 FEET  
 AA2669 (2.0 M) SOUTHEAST FROM THE WATER FOUNTAIN, AND 19.8 FEET (6.0 M)  
 AA2669 SOUTHEAST FROM THE NORTHEAST CORNER OF THE SHELTER.

AA2669  
 AA2669 STATION RECOVERY (2001)  
 AA2669

AA2669 RECOVERY NOTE BY DEWBERRY DAVIS 2001 (CSW)  
 AA2669 RECOVERED IN GOOD CONDITION.

AA2669  
 AA2669 STATION RECOVERY (2003)  
 AA2669

AA2669 RECOVERY NOTE BY GEOCACHING 2003 (APC)  
 AA2669 RECOVERED IN GOOD CONDITION.

AA2669  
 AA2669 STATION RECOVERY (2007)



AA2669  
AA2669'RECOVERY NOTE BY INDIVIDUAL CONTRIBUTORS 2007 (MH)  
AA2669'RECOVERED AS DESCRIBED

AA2670 \*\*\*\*\*  
AA2670 DESIGNATION - FC GPS 07  
AA2670 PID - AA2670  
AA2670 STATE/COUNTY- VA/C OF FALLS CHURCH  
AA2670 USGS QUAD - FALLS CHURCH (1994)  
AA2670  
AA2670 \*CURRENT SURVEY CONTROL  
AA2670  
AA2670\* NAD 83(2007)- 38 52 47.03775(N) 077 10 44.58578(W) ADJUSTED  
AA2670\* NAVD 88 - 85.392 (meters) 280.16 (feet) ADJUSTED  
AA2670  
AA2670 EPOCH DATE - 2002.00  
AA2670 X - 1,103,258.566 (meters) COMP  
AA2670 Y - -4,847,805.888 (meters) COMP  
AA2670 Z - 3,981,965.809 (meters) COMP  
AA2670 LAPLACE CORR- -2.19 (seconds) DEFLEC09  
AA2670 ELLIP HEIGHT- 53.496 (meters) (02/10/07) ADJUSTED  
AA2670 GEOID HEIGHT- -31.89 (meters) GEOID09  
AA2670 DYNAMIC HT - 85.345 (meters) 280.00 (feet) COMP  
AA2670  
AA2670 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----  
AA2670 Type PID Designation North East Ellip  
AA2670 -----  
AA2670 NETWORK AA2670 FC GPS 07 0.86 0.76 2.27  
AA2670 -----  
AA2670 MODELED GRAV- 980,074.3 (mgal) NAVD 88  
AA2670  
AA2670 VERT ORDER - THIRD  
AA2670  
AA2670.The horizontal coordinates were established by GPS observations  
AA2670.and adjusted by the National Geodetic Survey in February 2007.  
AA2670  
AA2670.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).  
AA2670.See National Readjustment for more information.  
AA2670.The horizontal coordinates are valid at the epoch date displayed above.  
AA2670.The epoch date for horizontal control is a decimal equivalence  
AA2670.of Year/Month/Day.  
AA2670  
AA2670.The orthometric height was determined by differential leveling and  
AA2670.adjusted in September 2004.  
AA2670  
AA2670.Photographs are available for this station.  
AA2670  
AA2670.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AA2670  
AA2670.The Laplace correction was computed from DEFLEC09 derived deflections.  
AA2670  
AA2670.The ellipsoidal height was determined by GPS observations  
AA2670.and is referenced to NAD 83.  
AA2670  
AA2670.The geoid height was determined by GEOID09.  
AA2670  
AA2670.The dynamic height is computed by dividing the NAVD 88  
AA2670.geopotential number by the normal gravity value computed on the  
AA2670.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AA2670.degrees latitude (g = 980.6199 gals.).  
AA2670  
AA2670.The modeled gravity was interpolated from observed gravity values.  
AA2670



AA2670; North East Units Scale Factor Converg.  
AA2670;SPC VA N - 2,135,474.909 3,614,613.798 MT 0.99995883 +0 49 27.9  
AA2670;SPC VA N - 7,006,137.26 11,858,945.44 sFT 0.99995883 +0 49 27.9  
AA2670;UTM 18 - 4,305,687.238 310,983.324 MT 1.00003996 -1 22 05.4  
AA2670  
AA2670! - Elev Factor x Scale Factor = Combined Factor  
AA2670!SPC VA N - 0.99999161 x 0.99995883 = 0.99995044  
AA2670!UTM 18 - 0.99999161 x 1.00003996 = 1.00003157  
AA2670  
AA2670: Primary Azimuth Mark Grid Az  
AA2670:SPC VA N - FC GPS 03 048 06 42.2  
AA2670:UTM 18 - FC GPS 03 050 18 15.5  
AA2670  
AA2670|-----|  
AA2670| PID Reference Object Distance Geod. Az |  
AA2670| dddmmss.s |  
AA2670| AA2666 FC GPS 03 APPROX. 0.6 KM 0485610.1 |  
AA2670| AA2671 FC GPS 08 APPROX. 1.0 KM 0895632.7 |  
AA2670| HV9516 V 1765 APPROX. 0.5 KM 3071401.9 |  
AA2670|-----|  
AA2670  
AA2670 SUPERSEDED SURVEY CONTROL  
AA2670  
AA2670 ELLIP H (05/17/02) 53.532 (m) GP( ) 4 2  
AA2670 NAD 83(1993)- 38 52 47.03796(N) 077 10 44.58570(W) AD( ) 1  
AA2670 ELLIP H (05/30/95) 53.518 (m) GP( ) 4 2  
AA2670 NGVD 29 (05/30/95) 85.61 (m) 280.9 (f) LEVELING 3  
AA2670  
AA2670.Superseded values are not recommended for survey control.  
AA2670.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AA2670.See file dsdata.txt to determine how the superseded data were derived.  
AA2670  
AA2670\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1098305687(NAD 83)  
AA2670\_MARKER: DD = SURVEY DISK  
AA2670\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
AA2670\_STAMPING: FC GPS NO. 07 1994  
AA2670\_MARK LOGO: VA-059  
AA2670\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
AA2670\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
AA2670+STABILITY: SURFACE MOTION  
AA2670\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR  
AA2670+SATELLITE: SATELLITE OBSERVATIONS - January 10, 2004  
AA2670  
AA2670 HISTORY - Date Condition Report By  
AA2670 HISTORY - 1994 MONUMENTED GEOMET  
AA2670 HISTORY - 19940310 GOOD GEOMET  
AA2670 HISTORY - 20030910 GOOD BOWMAN  
AA2670 HISTORY - 20040110 GOOD BOWMAN  
AA2670 HISTORY - 20090102 GOOD GEOCAC  
AA2670  
AA2670 STATION DESCRIPTION  
AA2670  
AA2670'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2670'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
AA2670'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
AA2670'ROUTE 7 (BROAD STREET) PROCEED SOUTHWEST ALONG ROUTE 29 (SOUTH  
AA2670'WASHINGTON STREET) 0.5 MILE (0.8 KM) TO ITS INTERSECTION WITH SOUTH  
AA2670'MAPLE AVENUE. TURN RIGHT AND PROCEED NORTHEAST ALONG SOUTH MAPLE  
AA2670'AVENUE 0.05 MILE (0.08 KM) TO THE ENTRANCE TO CAVALIER TRAIL PARK.  
AA2670'TURN LEFT AND PROCEED NORTH ABOUT 100 FEET (30.5 M) TO THE STATION ON  
AA2670'THE LEFT. THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN  
AA2670'THE TOP OF A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND  
AA2670'AND IS STAMPED FC GPS NO. 07 1994. THE STATION IS 47.0 FEET (14.3 M)



AA2670'SOUTHEAST FROM LIGHT POLE NUMBER QD57, 27.7 FEET (8.4 M) SOUTHWEST  
AA2670'FROM THE EDGE OF A GUARDRAIL, 7.8 FEET (2.4 M) SOUTHWEST FROM A 4 FOOT  
AA2670'(1.2 M) MAPLE TREE, AND 6.4 FEET (2.0 M) NORTHEAST FROM THE EDGE OF  
AA2670'PAVEMENT TO THE PARKING AREA.

AA2670

AA2670 STATION RECOVERY (1994)

AA2670

AA2670'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994

AA2670'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.

AA2670'

AA2670'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2670'STREET) AND ROUTE 7 (BROAD STREET) PROCEED SOUTHWEST ALONG ROUTE 29  
AA2670'(SOUTH WASHINGTON STREET) 0.5 MILES (0.8 KM) TO ITS INTERSECTION WITH  
AA2670'SOUTH MAPLE AVENUE. TURN RIGHT AND PROCEED NORTHEAST ALONG SOUTH  
AA2670'MAPLE AVENUE 0.05 MILES (0.08 KM) TO THE ENTRANCE TO CAVALIER TRAIL  
AA2670'PARK. TURN LEFT AND PROCEED NORTH ABOUT 100 FEET (30.5 M) TO THE  
AA2670'STATION ON THE LEFT.

AA2670'

AA2670'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2670'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2670'STAMPED FC GPS NO. 07 1994.

AA2670'

AA2670'THE STATION IS 47.0 FEET (14.3 M) SOUTHWEST FROM LIGHT POLE NUMBER  
AA2670'QD57, 27.7 FEET (8.4 M) NORTHWEST FROM THE EDGE OF A GUARD RAIL, 7.8  
AA2670'FEET (2.4 M) NORTHWEST FROM A 4 FOOT (1.2 M) MAPLE TREE, AND 6.4 FEET  
AA2670'(2.0 M) SOUTHEAST FROM THE EDGE OF PAVEMENT TO THE PARKING AREA.

AA2670

AA2670 STATION RECOVERY (2003)

AA2670

AA2670'RECOVERY NOTE BY BOWMAN CONSULTING GROUP 2003 (PJT)

AA2670'RECOVERED AS DESCRIBED

AA2670

AA2670 STATION RECOVERY (2004)

AA2670

AA2670'RECOVERY NOTE BY BOWMAN CONSULTING GROUP 2004 (PJT)

AA2670'RECOVERED AS DESCRIBED

AA2670

AA2670 STATION RECOVERY (2009)

AA2670

AA2670'RECOVERY NOTE BY GEOCACHING 2009 (APC)

AA2670'STATION DISK IS PARTLY COVERED BY BOULDER (APPROX. 2.8 X 3.3 X 2.5

AA2670'FEET). TRIPOD ACCESS MAY BE AFFECTED.

AA2671 \*\*\*\*\*

AA2671 DESIGNATION - FC GPS 08

AA2671 PID - AA2671

AA2671 STATE/COUNTY- VA/C OF FALLS CHURCH

AA2671 USGS QUAD - FALLS CHURCH (1994)

AA2671

AA2671 \*CURRENT SURVEY CONTROL

AA2671

AA2671\* NAD 83(2007)- 38 52 47.06953(N) 077 10 01.29692(W) ADJUSTED

AA2671\* NAVD 88 - 105.309 (meters) 345.50 (feet) ADJUSTED

AA2671

AA2671 EPOCH DATE - 2002.00

AA2671 X - 1,104,279.251 (meters) COMP

AA2671 Y - -4,847,588.721 (meters) COMP

AA2671 Z - 3,981,979.044 (meters) COMP

AA2671 LAPLACE CORR- -2.10 (seconds) DEFLECO9

AA2671 ELLIP HEIGHT- 73.365 (meters) (02/10/07) ADJUSTED

AA2671 GEOID HEIGHT- -31.91 (meters) GEOID09

AA2671 DYNAMIC HT - 105.251 (meters) 345.31 (feet) COMP

AA2671



AA2671 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----  
AA2671 Type PID Designation North East Ellip  
AA2671 -----  
AA2671 NETWORK AA2671 FC GPS 08 1.69 1.27 3.57  
AA2671 -----  
AA2671 MODELED GRAV- 980,075.6 (mgal) NAVD 88  
AA2671  
AA2671 VERT ORDER - THIRD  
AA2671  
AA2671.The horizontal coordinates were established by GPS observations  
AA2671.and adjusted by the National Geodetic Survey in February 2007.  
AA2671  
AA2671.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).  
AA2671.See National Readjustment for more information.  
AA2671.The horizontal coordinates are valid at the epoch date displayed above.  
AA2671.The epoch date for horizontal control is a decimal equivalence  
AA2671.of Year/Month/Day.  
AA2671  
AA2671.The orthometric height was determined by differential leveling and  
AA2671.adjusted in September 2004.  
AA2671  
AA2671.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AA2671  
AA2671.The Laplace correction was computed from DEFLEC09 derived deflections.  
AA2671  
AA2671.The ellipsoidal height was determined by GPS observations  
AA2671.and is referenced to NAD 83.  
AA2671  
AA2671.The geoid height was determined by GEOID09.  
AA2671  
AA2671.The dynamic height is computed by dividing the NAVD 88  
AA2671.geopotential number by the normal gravity value computed on the  
AA2671.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AA2671.degrees latitude (g = 980.6199 gals.).  
AA2671  
AA2671.The modeled gravity was interpolated from observed gravity values.  
AA2671  
AA2671;  
AA2671; North East Units Scale Factor Converg.  
AA2671;SPC VA N - 2,135,490.969 3,615,657.048 MT 0.99995883 +0 49 55.0  
AA2671;SPC VA N - 7,006,189.95 11,862,368.16 sFT 0.99995883 +0 49 55.0  
AA2671;UTM 18 - 4,305,663.373 312,026.507 MT 1.00003511 -1 21 38.2  
AA2671  
AA2671! - Elev Factor x Scale Factor = Combined Factor  
AA2671!SPC VA N - 0.99998849 x 0.99995883 = 0.99994732  
AA2671!UTM 18 - 0.99998849 x 1.00003511 = 1.00002360  
AA2671  
AA2671: Primary Azimuth Mark Grid Az  
AA2671:SPC VA N - FC GPS 05 022 04 34.8  
AA2671:UTM 18 - FC GPS 05 024 16 08.0  
AA2671  
AA2671|-----|  
AA2671| PID Reference Object Distance Geod. Az |  
AA2671| | dddmmss.s |  
AA2671| AA2668 FC GPS 05 APPROX. 0.8 KM 0225429.8 |  
AA2671|-----|  
AA2671  
AA2671 SUPERSEDED SURVEY CONTROL  
AA2671  
AA2671 ELLIP H (05/17/02) 73.420 (m) GP( ) 4 2  
AA2671 NAD 83(1993)- 38 52 47.06974(N) 077 10 01.29685(W) AD( ) 1  
AA2671 ELLIP H (05/30/95) 73.396 (m) GP( ) 4 2  
AA2671 NAVGD 29 (05/30/95) 105.52 (m) 346.2 (f) LEVELING 3  
AA2671



AA2671.Superseded values are not recommended for survey control.  
AA2671.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
AA2671.See file dsdata.txt to determine how the superseded data were derived.  
AA2671  
AA2671\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1202605663(NAD 83)  
AA2671\_MARKER: DD = SURVEY DISK  
AA2671\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT  
AA2671\_STAMPING: FC GPS NO. 08 1994  
AA2671\_MARK LOGO: VA-059  
AA2671\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET  
AA2671\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO  
AA2671+STABILITY: SURFACE MOTION  
AA2671\_SATELLITE: THE SITE LOCATION WAS REPORTED AS NOT SUITABLE FOR  
AA2671+SATELLITE: SATELLITE OBSERVATIONS - September 05, 2002  
AA2671  
AA2671 HISTORY - Date Condition Report By  
AA2671 HISTORY - 1994 MONUMENTED GEOMET  
AA2671 HISTORY - 19940310 GOOD GEOMET  
AA2671 HISTORY - 20020905 GOOD GEOCAC  
AA2671  
AA2671 STATION DESCRIPTION  
AA2671  
AA2671'DESCRIBED BY GEOMETRICS GPS INCORPORATED 1994 (DAR)  
AA2671'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA. TO REACH  
AA2671'THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND  
AA2671'ROUTE 7 (BROAD STREET) PROCEED SOUTHEAST ALONG ROUTE 7 (BROAD STREET)  
AA2671'0.2 MILE (0.3 KM) TO ITS INTERSECTION WITH NORTH FAIRFAX STREET.  
AA2671'PROCEED SOUTHEAST ALONG BROAD STREET APPROXIMATELY 300 FEET (91.4 M)  
AA2671'TO THE STATION ON THE LEFT. THE STATION IS A 3.5 INCH BRASS FAIRFAX  
AA2671'COUNTY DISK SET IN THE TOP OF A 10 INCH DIAMETER CONCRETE MONUMENT  
AA2671'FLUSH WITH THE GROUND AND IS STAMPED FC GPS NO. 08 1994. THE STATION  
AA2671'IS 11.0 FEET (3.4 M) NORTHWEST FROM POWER POLE NUMBER XD44, 1.6 FEET  
AA2671'(0.5 M) NORTHEAST FROM THE BACK OF SIDEWALK, AND APPROXIMATELY 39.2  
AA2671'FEET (11.9 M) SOUTHEAST FROM THE SOUTHEAST EDGE OF AN ASPHALT WALK.  
AA2671  
AA2671 STATION RECOVERY (1994)  
AA2671  
AA2671'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2671'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA.  
AA2671'  
AA2671'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2671'STREET) AND ROUTE 7 (BROAD STREET) PROCEED SOUTHEAST ALONG ROUTE 7  
AA2671'(BROAD STREET) 0.2 MILES (0.3 KM) TO ITS INTERSECTION WITH NORTH  
AA2671'FAIRFAX STREET. PROCEED SOUTHEAST ALONG BROAD STREET APPROXIMATELY  
AA2671'300 FEET (91.4 M) TO THE STATION ON THE LEFT.  
AA2671'  
AA2671'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2671'A 10 INCH DIAMETER CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS  
AA2671'STAMPED FC GPS NO. 08 1994.  
AA2671'  
AA2671'THE STATION IS 11.0 FEET (3.4 M) NORTHWEST FROM POWER POLE NUMBER  
AA2671'XD44, 1.6 FEET (0.5 M) NORTHEAST FROM THE BACK OF SIDEWALK, AND  
AA2671'APPROXIMATELY 39.2 FEET (11.9 M) SOUTHEAST FROM THE SOUTHEAST EDGE OF  
AA2671'AN ASPHALT WALK.  
AA2671  
AA2671 STATION RECOVERY (2002)  
AA2671  
AA2671'RECOVERY NOTE BY GEOCACHING 2002 (APC)  
AA2671'STATION LOCATED AS DESCRIBED ALONG BROAD STREET (RT. 7) IN FALLS  
AA2671'CHURCH IN FRONT OF DONALD S. FRADY PARK, BETWEEN HOUSE NUMBERS 303 AND  
AA2671'317. IT IS NORTH (NOT NORTHWEST) OF AND ACROSS THE SIDEWALK FROM THE  
AA2671'POWER POLE, WHICH IS LABELED 303K AS WELL AS XD44. THE ASPHALT WALK  
AA2671'MENTIONED IN THE DESCRIPTION WAS NOT OBSERVED BUT APPEARS TO HAVE BEEN



AA2671'REPAVED IN CONCRETE.

AA2672 \*\*\*\*\*  
AA2672 DESIGNATION - FC GPS 09  
AA2672 PID - AA2672  
AA2672 STATE/COUNTY- VA/C OF FALLS CHURCH  
AA2672 USGS QUAD - FALLS CHURCH (1994)  
AA2672  
AA2672 \*CURRENT SURVEY CONTROL  
AA2672  
AA2672\* NAD 83(2007)- 38 53 31.06379(N) 077 11 11.47562(W) ADJUSTED  
AA2672\* NAVD 88 - 103.287 (meters) 338.87 (feet) ADJUSTED  
AA2672  
AA2672 EPOCH DATE - 2002.00  
AA2672 X - 1,102,440.645 (meters) COMP  
AA2672 Y - -4,847,132.214 (meters) COMP  
AA2672 Z - 3,983,033.852 (meters) COMP  
AA2672 LAPLACE CORR- -2.27 (seconds) DEFLECC09  
AA2672 ELLIP HEIGHT- 71.422 (meters) (02/10/07) ADJUSTED  
AA2672 GEOID HEIGHT- -31.86 (meters) GEOID09  
AA2672 DYNAMIC HT - 103.230 (meters) 338.68 (feet) COMP  
AA2672  
AA2672 ----- Accuracy Estimates (at 95% Confidence Level in cm) -----  
AA2672 Type PID Designation North East Ellip  
AA2672 -----  
AA2672 NETWORK AA2672 FC GPS 09 0.82 0.71 2.10  
AA2672 -----  
AA2672 MODELED GRAV- 980,074.0 (mgal) NAVD 88  
AA2672  
AA2672 VERT ORDER - THIRD  
AA2672  
AA2672.The horizontal coordinates were established by GPS observations  
AA2672.and adjusted by the National Geodetic Survey in February 2007.  
AA2672  
AA2672.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).  
AA2672.See National Readjustment for more information.  
AA2672.The horizontal coordinates are valid at the epoch date displayed above.  
AA2672.The epoch date for horizontal control is a decimal equivalence  
AA2672.of Year/Month/Day.  
AA2672  
AA2672.The orthometric height was determined by differential leveling and  
AA2672.adjusted in September 2004.  
AA2672.No vertical observational check was made to the station.  
AA2672  
AA2672.The X, Y, and Z were computed from the position and the ellipsoidal ht.  
AA2672  
AA2672.The Laplace correction was computed from DEFLECC09 derived deflections.  
AA2672  
AA2672.The ellipsoidal height was determined by GPS observations  
AA2672.and is referenced to NAD 83.  
AA2672  
AA2672.The geoid height was determined by GEOID09.  
AA2672  
AA2672.The dynamic height is computed by dividing the NAVD 88  
AA2672.geopotential number by the normal gravity value computed on the  
AA2672.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45  
AA2672.degrees latitude (g = 980.6199 gals.).  
AA2672  
AA2672.The modeled gravity was interpolated from observed gravity values.  
AA2672  
AA2672; North East Units Scale Factor Converg.  
AA2672;SPC VA N - 2,136,823.048 3,613,946.327 MT 0.99995983 +0 49 11.2  
AA2672;SPC VA N - 7,010,560.28 11,856,755.57 sFT 0.99995983 +0 49 11.2



AA2672;UTM 18 - 4,307,060.042 310,367.874 MT 1.00004283 -1 22 23.6

AA2672

AA2672! - Elev Factor x Scale Factor = Combined Factor

AA2672!SPC VA N - 0.99998879 x 0.99995983 = 0.99994862

AA2672!UTM 18 - 0.99998879 x 1.00004283 = 1.00003162

AA2672

AA2672:	Primary Azimuth Mark	Grid Az
AA2672:SPC VA N	- FC GPS 02	094 56 50.0
AA2672:UTM 18	- FC GPS 02	097 08 24.8

AA2672

AA2672	-----		
AA2672	PID Reference Object	Distance	Geod. Az
AA2672		dddmss.s	
AA2672	AA2665 FC GPS 02	APPROX. 1.1 KM	0954601.2
AA2672	AA2667 FC GPS 04	17.647 METERS	19512
AA2672	-----		

AA2672

AA2672 SUPERSEDED SURVEY CONTROL

AA2672

AA2672	ELLIP H (05/17/02)	71.470 (m)	GP( ) 4 2
AA2672	NAD 83(1993)-	38 53 31.06401(N)	077 11 11.47554(W) AD( ) 1
AA2672	ELLIP H (05/30/95)	71.451 (m)	GP( ) 4 2
AA2672	NGVD 29 (05/30/95)	103.51 (m)	339.6 (f) LEVELING 3

AA2672

AA2672.Superseded values are not recommended for survey control.  
 AA2672.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.  
 AA2672.See file dsdata.txt to determine how the superseded data were derived.

AA2672

AA2672\_U.S. NATIONAL GRID SPATIAL ADDRESS: 18SUJ1036707060(NAD 83)

AA2672\_MARKER: DD = SURVEY DISK

AA2672\_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT

AA2672\_STAMPING: FC GPS NO. 09 1994

AA2672\_MARK LOGO: VA-059

AA2672\_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET

AA2672\_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO

AA2672+STABILITY: SURFACE MOTION

AA2672\_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR

AA2672+SATELLITE: SATELLITE OBSERVATIONS - December 31, 2006

AA2672

AA2672	HISTORY	- Date	Condition	Report By
AA2672	HISTORY	- 1994	MONUMENTED	VA0930
AA2672	HISTORY	- 19940310	GOOD	GEOMET
AA2672	HISTORY	- 20011207	GOOD	DEWDAV
AA2672	HISTORY	- 20061231	GOOD	USPSQD
AA2672	HISTORY	- 20090102	GOOD	GEOCAC

AA2672

AA2672 STATION DESCRIPTION

AA2672

AA2672'DESCRIBED BY CITY OF FALLS CHURCH VIRGINIA 1994 (MLK)  
 AA2672'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA ABOUT  
 AA2672'1.15 MILES (1.85 KM) NORTHWEST OF THE JUNCTION OF ROUTE 7 (BROAD  
 AA2672'STREET) AND ROUTE 29 (WASHINGTON STREET) . TO REACH THE STATION FROM  
 AA2672'THE INTERSECTION OF ROUTE 29 (WASHINGTON STREET) AND ROUTE 7 (BROAD  
 AA2672'STREET) PROCEED NORTHWEST ALONG ROUTE 7 (BROAD STREET) 1.15 MILES  
 AA2672'(1.85 KM) TO THE WASHINGTON AND OLD DOMINION RAILROAD TRAIL AND THE  
 AA2672'STATION ON THE LEFT. THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY  
 AA2672'DISK SET IN THE TOP OF A 10 INCH CONCRETE MONUMENT FLUSH WITH THE  
 AA2672'GROUND AND IS STAMPED FC GPS NO. 09 1994. THE STATION IS 16.8 FEET  
 AA2672'(5.1 M) SOUTHWEST FROM THE BACK OF A BRICK SIDEWALK AND 5.2 FEET (1.6  
 AA2672'M) NORTHWEST FROM THE EDGE OF AN ASPHALT BIKE ACCESS TRAIL.

AA2672

AA2672 STATION RECOVERY (1994)

AA2672



AA2672'RECOVERY NOTE BY GEOMETRICS GPS INCORPORATED 1994  
AA2672'THE STATION IS LOCATED IN THE CITY OF FALLS CHURCH, VIRGINIA ABOUT  
AA2672'1.15 MILES (1.85 KM) NORTHWEST OF THE JUNCTION OF ROUTE 7 (BROAD  
AA2672'STREET) AND ROUTE 29 (WASHINGTON STREET).  
AA2672'  
AA2672'TO REACH THE STATION FROM THE INTERSECTION OF ROUTE 29 (WASHINGTON  
AA2672'STREET) AND ROUTE 7 (BROAD STREET) PROCEED NORTHWEST ALONG ROUTE 7  
AA2672'(BROAD STREET) 1.15 MILES (1.85 KM) TO THE WASHINGTON AND OLD DOMINION  
AA2672'RAILROAD TRAIL AND THE STATION ON THE LEFT.  
AA2672'  
AA2672'THE STATION IS A 3.5 INCH BRASS FAIRFAX COUNTY DISK SET IN THE TOP OF  
AA2672'A 10 INCH CONCRETE MONUMENT FLUSH WITH THE GROUND AND IS STAMPED FC  
AA2672'GPS NO. 09 1994.  
AA2672'  
AA2672'THE STATION IS 16.8 FEET (5.1 M) SOUTHWEST FROM THE BACK OF A BRICK  
AA2672'SIDE WALK AND 5.2 FEET (1.6 M) NORTHWEST FROM THE EDGE OF AN ASLPHALT  
AA2672'BIKE ACCESS TRAIL.  
AA2672  
AA2672 STATION RECOVERY (2001)  
AA2672  
AA2672'RECOVERY NOTE BY DEWBERRY DAVIS 2001 (CSW)  
AA2672'RECOVERED IN GOOD CONDITION.  
AA2672  
AA2672 STATION RECOVERY (2006)  
AA2672  
AA2672'RECOVERY NOTE BY US POWER SQUADRON 2006 (TDM)  
AA2672'RECOVERED IN GOOD CONDITION.  
AA2672  
AA2672 STATION RECOVERY (2009)  
AA2672  
AA2672'RECOVERY NOTE BY GEOCACHING 2009 (APC)  
AA2672'RECOVERED IN GOOD CONDITION.

