MINIMUM TECHNICAL STANDARDS, VOL. 1
FINAL REPORT OF LIDAR CONTROL AND QA/QC CHECKPOINT SURVEY

SARASOTA COUNTY
BUY-UP AREA

STATE OF FLORIDA
DIVISION OF EMERGENCY MANAGEMENT

CONTRACT NO. 07-HS-34-14-00-22-469
PURCHASE ORDER P737935

SEPTEMBER 16, 2008

MINIMUM TECHNICAL STANDARDS, VOL. 1
FINAL REPORT OF LIDAR CONTROL AND QA/QC CHECKPOINT SURVEY

SARASOTA COUNTY
BUY-UP AREA

STATE OF FLORIDA
DIVISION OF EMERGENCY MANAGEMENT

CONTRACT NO. 07-HS-34-14-00-22-469
PURCHASE ORDER P747935

PREPARED BY:
WOOLPERT, INC.
3504 LAKE LYNDA DRIVE, SUITE 400
ORLANDO, FLORIDA 32817-1484
LB 0006777

SEPTEMBER 16, 2008

QUALITY

At Woolpert, quality is the cornerstone of our business. We invite your comments and suggestions for improving this document.

TRADEMARKS

All brand names and product names are trademarks or registered trademarks of their respective companies.

NOTICE OF PROPRIETARY INFORMATION

MINIMUM TECHNICAL STANDARDS REPORT OF LiDAR GROUND CONTROL SURVEY

Contract No. 07-HS-34-14-00-22-469
Purchase Order P737935

SARASOTA COUNTY BUY-UP AREA

For:
State of Florida, Division of Emergency Management
"State Emergency Response Team"
2555 Shumard Oak Boulevard
Tallahassee, Florida 32399-2100

Sarasota County, Florida
1660 Ringling Boulevard
Sarasota, Florida 34236

By:
WOOLPERT, Inc.
Laurel Building
3504 Lake Lynda Drive, Suite 400
Orlando, FL 32817-1484
Tel 407.381.2192 / Fax 407.384.1185
Florida Certificate of Authorization LB 6777

Prepared by:
David Bruno, PSM
Florida Professional Surveyor and Mapper PSM 5670

Summary of Contents

LiDAR Ground Control Survey and QA/QC Survey Report Page

REPORT OF LiDAR GROUND CONTROL SURVEY
SARASOTA COUNTY BUY-UP AREA
FOR THE
FLORIDA DIVISION OF EMERGENCY MANGEMENT

Introduction

This report contains an outline of the QA/QC Survey that supported LiDAR Data Acquisition in the general area of:

- Sarasota County Buy-Up Area – Remainder of Sarasota County not in Project Area D of this mapping project.

Project Area

Sarasota County Buy-Up Area encompassed approximately +/-272 square miles of the approximately +/-3,774 square miles of the FY2007 State of Florida Division of Emergency Management Ground Control QA/QC Survey Mapping Project.

Purpose

The purpose of this survey was to acquire a minimum of twenty (20) independently surveyed LiDAR Control Points and a minimum of one-hundred twenty (120) three-dimensional LiDAR QA/QC Checkpoints per 500 square miles of project area. To the extent allowed by the terrain, the LiDAR Control Points and Checkpoints were distributed so that points were spaced at intervals of at least 10% of the diagonal distance across the dataset and at least 20% of the points were located in each quadrant of the +/-272 square-mile project area.

LiDAR Control Points were defined as observations made on unobstructed, relatively flat, light-colored, hard uniform surfaces. Three-dimensional coordinate values were calculated for these points and then incorporated in the initial processing of the LiDAR data to ensure the proper horizontal and vertical geographical location of the LiDAR data set.

LiDAR QA/QC Checkpoints were ground truth observations distributed within the land cover classes of urban, bare-earth/low grass, brush land/sparse trees and dense trees/forested. These QA/QC Checkpoints were used to verify the accuracy of the LiDAR missions for final DTM and contour deliverables.

Date of Survey

All LiDAR Control Point and LiDAR QA/QC Checkpoint field operations took place between Nov. 6, 2007 and Nov 8, 2007.

Map Reference

Maps illustrating project boundaries, LiDAR QA/QC Checkpoints, LiDAR Control Points and GPS control stations for this project area can be found in Appendix D of this report.

Name of Responsible Surveyor

David Bruno, PSM
Woolpert, Inc.
Laurel Building
3504 Lake Lynda Drive, Suite 400
Orlando, Florida 32817-1484
Professional Surveyor and Mapper Number 5670

Name of Company

Woolpert, Inc.
Laurel Building
3504 Lake Lynda Drive, Suite 400
Orlando, Florida 32817-1484
Florida Certificate of Authorization No. LB-0006777

Field and Office Personnel

Matthew Brown
Dave Bruno
Greg Fox
Jason Kail
Scott Lamb
Wes Miller
Steve Roberts
Jim Speelman

Abbreviations

1-D – One-Dimensional
2-D – Two-Dimensional
3-D – Three-Dimensional
cm – Centimeter
CP – Certified Photogrammetrist
DOI – Digital Orthophoto Imagery
FAC – Florida Administrative Code
FDEM – Florida Division of Emergency Mapping
FGDC – Federal Geodetic Control Committee
FL – Florida
GPS – Global Positioning System
Inc. – Incorporated
LiDAR – Light Detecting and Ranging
MTS – Florida Minimum Technical Standards (FAC 61G17)
NAD 83/99-HARN – North American Datum 1983 High Accuracy Reference Network 1999 adjustment
NAVD 88 – North American Vertical Datum of 1988
NGS – National Geodetic Survey

NOAA – National Oceanic and Atmospheric Administration
NSSDA – National Standards for Spatial Data Accuracy
PID – Photo Identifiable Point (feature)
QC – Quality Control
RMSE – Root Mean Square Error
STD – Standard Deviations
TGO – Trimble Geomatics Office
TTC – Trimble Total Control
U.S. – United States
Woolpert – Woolpert, Inc

Data Sources

Existing Control Point Coordinates:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, MD 20910-3282
Phone: (301) 713-3242
Fax: (301) 713-4172
Email: info_center@ngs.noaa.gov
http://www.ngs.noaa.gov/

Monumentation

Woolpert field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations. These existing control stations were utilized to insure that quality X, Y, and Z coordinate values were computed for each of the newly established QA/QC Checkpoints throughout the project area. During the field reconnaissance, field crews recovered and verified five (5) existing NGS control stations suitable for GPS observations: **I75 83 A01, I75 83 A34, I75 83 A44, LORAN** and **VERNA.** The NGS Data Sheets for these stations can be found in Appendix A of this report.

Woolpert established a total of 13 LiDAR Control Points, 69 LiDAR QA/QC Checkpoints and 24 intermediate (traverse) control stations to be used for conventional surveying of the dense trees/forested LiDAR QA/QC Checkpoints. All of these stations consisted of one of the following: a PK Nail, 6" spike with a plastic washer, a paint mark, a railroad spike, a hub and tack or a scribe mark.

Methodology

All field reconnaissance, monumentation, observations, data adjustments, and final report development was performed under the direct supervision of David Bruno, PSM 5670, Professional Surveyor and Mapper in Charge. Two types of survey techniques, Rapid Static GPS and conventional survey methods were utilized in collecting the LiDAR Control Points and the LiDAR QA/QC Checkpoints for this project. Woolpert's ISO 9001 2000 certified QA/QC process for ground control and GPS surveys was used as a guideline for this project.

Rapid Static GPS

Woolpert field crews utilized Rapid Static GPS surveying techniques for measuring 57 of the 69 LiDAR QA/QC Checkpoints, all of the LiDAR Control Points and all of the intermediate (traverse) control stations [to be used for conventional surveying of the dense trees/forested LiDAR QA/QC Checkpoints]. Rapid Static GPS surveying required a minimum of two receivers to occupy NGS control stations and LiDAR QA/QC Checkpoints or LiDAR Control Points for a minimum of 30 minutes, depending upon baseline length, number of satellites, and satellite geometry. This method is compareable in accuracy to static surveying; however, shorter observation time is made possible due to advancements in hardware and software. The final coordinates for the LiDAR Control Points, LiDAR QA/QC Checkpoints and intermediate (traverse) control stations can be found in Appendix B of this report.

For this survey, Woolpert field crews utilized three (3) Woolpert-owned, Trimble Navigation R8 model 2 GNSS dual-frequency geodetic GPS receivers as base stations and up to four (4) Woolpert-owned, Trimble Navigation R8 model 2 GNSS dual-frequency geodetic GPS receivers as rovers. Each observation session utilized a 5-second sync rate, lasting between 30-45 minutes each depending on distance from the furthest base station.

Using rapid-static GPS techniques, the field crews observed five (5) existing NGS control stations in the GPS network in an effort to establish survey quality control coordinates throughout the project. The Rapid Static GPS control network consisted of the following NGS and newly established stations: **I75 83 A01, I75 83 A34, I75 83 A44, LORAN** and **VERNA.**

Conventional Surveying

Using the paired intermediate (traverse) control stations set with Rapid-Static GPS, Woolpert field crews used a Woolpert-owned Topcon GTS-701 Total Station or a Woolpert-owned Topcon GTS-711 Total Station to acquire seventeen (17) LiDAR QA/QC Checkpoints in obscured areas (dense trees/forested) where GPS observations were limited. The final coordinates for the LiDAR QA/QC Checkpoints can be found in Appendix B of this report.

Datum Reference and Final Coordinates

All horizontal GPS control was based on the Florida State Plane Coordinate System (West Zone), referenced to North American Datum 1983, adjustment of 1999 (NAD83/99) HARN, expressed in U.S. Survey Feet. All vertical control was based on the North American Vertical Datum of 1988 (NAVD88), also expressed in U.S. Survey Feet.

GPS Data Analysis and Processing

The field crew chief processed all session baselines each day using *Trimble Navigation's* Trimble Geomatics Office (TGO) Version 1.63 baseline processor with the broadcast ephemeris. *Trimble Navigation's* Trimble Geomatics Office (TGO) Wave Software User's Guide (November 1999) was used as a reference. The ratio and root-mean-square error (RMSE) criteria on pages 3-4 to 3-6 of the guide were followed. Other criteria used a maximum of 10.5 percent rejections, along with float-versus-fixed deltas of 10 cm. All cases that failed to meet any of these criteria were rejected and not used. Fixed solutions were obtained for all vector baselines.

Daily processing allowed the field crews to discover any weak links in the network and immediately schedule re-observations of the affected baselines. Once the fieldwork was complete, the processed baselines were then run through a rigorous loop closure analysis. Any baselines that failed this analysis were either reprocessed or removed from the network.

Rapid Static Adjustment

Upon completion of all field data processing, Woolpert performed a minimally constrained and fully constrained least-squares adjustments using *Trimble Navigation's* Trimble Total Control (TTC) version 2.73. After an acceptable minimally constrained least-squares adjustment was obtained, a fully constrained least-squares adjustment was performed by fixing the GPS networks to existing NGS/County control stations. Geoid 03 was used to model the elevations. For this survey the following stations were held fixed:

DIMENSIONS	EXISTING NGS CONTROL STATIONS
3-D Control Stations	**I75 83 A01 (AG8045), I75 83 A34 (AG8216), I75 83 A44 (AG8255), LORAN (AG7631), VERNA (AG1968)**

Accuracy Statement

The positional accuracy of the LiDAR QA/QC Checkpoints was 0.08-feet (avg. 0.04-feet) horizontally and 0.29-feet (avg. 0.14-feet) vertically at the 95% confidence level. The positional accuracy of the LiDAR Control Points was 0.07-feet (avg. 0.04-feet) horizontally and 0.27-feet (avg. 0.14-feet) vertically at the 95% confidence level.

The ground control survey meets positional accuracies necessary to support a DTM to meet or exceed a 3.8-foot horizontal accuracy and 0.6-foot fundamental vertical accuracy at the 95% confidence level.

The positional accuracies information can be found in Appendix C of this report.

Notes

1. **THIS REPORT OF SURVEY IS PART OF THE LiDAR MAPPING QA/QC GROUND CONTROL SURVEY. SIX (6) GROUND CONTROL LAYOUT MAPS SHALL ACCOMPANY THE SURVEY REPORT. NEITHER THE MAPS NOR THIS REPORT OF SURVEY IS FULL AND COMPLETE WITHOUT THE OTHER. THIS REPORT OF SURVEY IS NOT VALID WITHOUT THE SIGNATURE AND ORIGINAL RAISED SEAL OF A FLORIDA LICENSED SURVEYOR AND MAPPER IN RESPONSIBLE CHARGE.**

2. **THIS REPORT OF SURVEY CONSISTS OF FOURTY-EIGHT (48) PAGES AND EACH PAGE SHALL NOT BE CONSIDERED FULL OR COMPLETE UNLESS ATTACHED TO THE OTHER(S). ADDITIONS OR DELETIONS TO SURVEY MAPS AND REPORTS BY OTHER THAN THE SIGNING PARTY OR PARTIES IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF THE SIGNING PARTY OR PARTIES.**

3. **THIS LiDAR MAPPING QA/QC GROUND CONTROL SURVEY DATA AND REPORT IS CERTIFIED TO THE FLORIDA DIVISION OF EMERGENCY MANAGEMENT AS MEETING OR EXCEEDING, IN QUALITY AND PRECISION, THE STANDARDS APPLICABLE FOR THIS WORK, AS SET FORTH IN CHAPTER 61G17, FLORIDA ADMINISTRATIVE CODE & FEMA GUIDELINES AND SPECIFICATIONS FOR FLOOD HAZARD MAPPING PARTNERS.**

Surveyor and Mapper in Responsible Charge:
David Bruno PSM
Professional Surveyor and Mapper
License Number: LS 5670

Signed: _____

Seal:

APPENDIX A: EXISTING GROUND CONTROL INFORMATION

This appendix contains the published National Geodetic Survey (NGS) data sheets for the control utilized for the Sarasota County Buy-Up Area of the FY2007 State of Florida Division of Emergency Management Ground Control QA/QC Survey Mapping Project.

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.61
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 16, 2008
 AG8045 ***********************************************************************
 AG8045  DESIGNATION -  I75 83 A01
 AG8045  PID         -  AG8045
 AG8045  STATE/COUNTY-  FL/SARASOTA
 AG8045  USGS QUAD   -  MURDOCK SE (1987)
 AG8045
 AG8045                        *CURRENT SURVEY CONTROL
 AG8045  ______________________________________________________________________
 AG8045* NAD 83(2007)-  27 03 34.76004(N)    082 05 04.93571(W)     ADJUSTED
 AG8045* NAVD 88     -        13.735  (meters)      45.06   (feet)  ADJUSTED
 AG8045  ______________________________________________________________________
 AG8045  EPOCH DATE  -        2002.00
 AG8045  X           -     782,720.287 (meters)                     COMP
 AG8045  Y           -  -5,629,721.308 (meters)                     COMP
 AG8045  Z           -   2,884,098.902 (meters)                     COMP
 AG8045  LAPLACE CORR-          -1.23  (seconds)                    DEFLEC99
 AG8045  ELLIP HEIGHT-        -10.399 (meters)          (02/10/07) ADJUSTED
 AG8045  GEOID HEIGHT-        -24.12  (meters)                     GEOID03
 AG8045  DYNAMIC HT  -         13.714 (meters)      44.99  (feet)  COMP
 AG8045
 AG8045  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AG8045  Type    PID    Designation                      North   East  Ellip
 AG8045  ----------------------------------------------------------------------
 AG8045  NETWORK AG8045 I75 83 A01                         2.21   2.43   5.59
 AG8045  ----------------------------------------------------------------------
 AG8045  MODELED GRAV-     979,119.7   (mgal)                     NAVD 88
 AG8045
 AG8045  VERT ORDER  -  SECOND    CLASS II
 AG8045
 AG8045.The horizontal coordinates were established by GPS observations
 AG8045.and adjusted by the National Geodetic Survey in February 2007.
 AG8045
 AG8045.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AG8045.See National Readjustment for more information.
 AG8045.The horizontal coordinates are valid at the epoch date displayed above.
 AG8045.The epoch date for horizontal control is a decimal equivalence
 AG8045.of Year/Month/Day.
 AG8045
 AG8045.The orthometric height was determined by differential leveling
 AG8045.and adjusted in June 1991.
 AG8045
 AG8045.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AG8045
 AG8045.The Laplace correction was computed from DEFLEC99 derived deflections.
 AG8045
 AG8045.The ellipsoidal height was determined by GPS observations
 AG8045.and is referenced to NAD 83.
 AG8045
 AG8045.The geoid height was determined by GEOID03.
```

```
 AG8045
 AG8045.The dynamic height is computed by dividing the NAVD 88
 AG8045.geopotential number by the normal gravity value computed on the
 AG8045.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AG8045.degrees latitude (g = 980.6199 gals.).
 AG8045
 AG8045.The modeled gravity was interpolated from observed gravity values.
 AG8045
 AG8045;                    North         East     Units Scale Factor Converg.
 AG8045;SPC FL W     -   302,016.563   191,597.611   MT  0.99994205   -0 02
18.7
 AG8045;SPC FL W     -   990,866.01    628,599.83   sFT  0.99994205   -0 02
18.7
 AG8045;UTM  17      - 2,993,505.908   392,433.907   MT  0.99974283   -0 29
36.6
 AG8045
 AG8045!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AG8045!SPC FL W     -   1.00000163  x   0.99994205  =   0.99994368
 AG8045!UTM  17      -   1.00000163  x   0.99974283  =   0.99974446
 AG8045
 AG8045|----------------------------------------------------------------------|
 AG8045| PID    Reference Object                    Distance      Geod. Az  |
 AG8045|                                                          dddmmss.s |
 AG8045| AG8046 I75 83 A01 RM 1                      11.507 METERS 03102     |
 AG8045| AG8047 I75 83 A01 RM 2                      11.649 METERS 24019     |
 AG8045| AG8052 I75 83 A02                          APPROX. 1.4 KM 3160614.5 |
 AG8045|----------------------------------------------------------------------|
 AG8045
 AG8045                          SUPERSEDED SURVEY CONTROL
 AG8045
 AG8045  NAD 83(1999)-  27 03 34.76012(N)    082 05 04.93597(W) AD(       ) 1
 AG8045  ELLIP H (06/19/01)  -10.377  (m)                       GP(       ) 4 1
 AG8045  NAD 83(1990)-  27 03 34.75853(N)    082 05 04.93555(W) AD(       ) 1
 AG8045  ELLIP H (05/09/94)  -10.278  (m)                       GP(       ) 4 2
 AG8045  NAD 83(1990)-  27 03 34.76366(N)    082 05 04.93507(W) AD(       ) 2
 AG8045  NAD 83(1986)-  27 03 34.76295(N)    082 05 04.95047(W) AD(       ) 2
 AG8045  NAVD 88 (05/09/94)   13.73   (m)           45.0    (f) LEVELING    3
 AG8045  NGVD 29 (09/01/92)   14.079  (m)           46.19   (f) ADJUSTED    2 2
 AG8045
 AG8045.Superseded values are not recommended for survey control.
 AG8045.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AG8045.See file dsdata.txt to determine how the superseded data were derived.
 AG8045
 AG8045_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RLK9243493506(NAD 83)
 AG8045_MARKER: DH = HORIZONTAL CONTROL DISK
 AG8045_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AG8045_SP_SET: CONCRETE POST
 AG8045_STAMPING: I75 83 A 01
 AG8045_MARK LOGO: FLDT
 AG8045_PROJECTION: RECESSED 13 CENTIMETERS
 AG8045_MAGNETIC: N = NO MAGNETIC MATERIAL
 AG8045_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AG8045+STABILITY: SURFACE MOTION
 AG8045_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AG8045+SATELLITE: SATELLITE OBSERVATIONS - May 04, 1992
 AG8045
 AG8045  HISTORY     - Date     Condition        Report By
```

```
AG8045  HISTORY     - 1983     MONUMENTED       FLDT
AG8045  HISTORY     - 1983     GOOD             FLDT
AG8045  HISTORY     - 19920504 GOOD             FL-115
AG8045  HISTORY     - 20011106 GOOD             USPSQD
AG8045
AG8045                          STATION DESCRIPTION
AG8045
AG8045'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983 (CBM)
AG8045'STATION IS LOCATED ABOUT 5-3/4 MILES NORTH OF PORT CHARLOTTE AND ABOUT
AG8045'9-1/2 MILES EAST-NORTHEAST OF NORTH PORT.  AT THE SOUTHEAST END OF
AG8045'INTERSTATE ROUTE 75 BRIDGE OVER YORKSHIRE STREET.
AG8045'
AG8045'TO REACH STATION FROM THE STATE ROUTE 769 (KINGS HWY) AND INTERSTATE
AG8045'ROUTE 75 INTERCHANGE, GO NORTH ON INTERSTATE ROUTE 75 FOR ABOUT 3.25
AG8045'MILES TO INTERSTATE ROUTE 75 BRIDGE OVER YORKSHIRE STREET AND STATION
AG8045'LOCATED IN MEDIAN AT SOUTHEAST END OF BRIDGE.
AG8045'
AG8045'STATION MARK IS A FLORIDA DEPARTMENT BRASS DISK, STAMPED---I75 83 A01-
AG8045'--, SET IN TOP OF A ROUND CONCRETE MONUMENT THAT IS 5 INCHES BELOW
AG8045'GROUND.  IT IS 4.0 FEET SOUTHEAST OF METAL WITNESS POST, 6.0 FEET
AG8045'SOUTHEAST OF CONCRETE ABUTMENT, 37.0 FEET SOUTHWEST OF METAL GUARD
AG8045'RAIL, 36.5 FEET SOUTHWEST OF SOUTHEAST END OF BRIDGE RAIL AND 56.0
AG8045'FEET SOUTHWEST OF CENTERLINE OF INTERSTATE ROUTE 75 NORTHBOUND LANE.
AG8045'
AG8045'REFERENCE MARK NUMBER 1 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8045'BRASS DISK, STAMPED---I75 83 A01 RM NO 1---, SET IN DRILL HOLE IN
AG8045'CONCRETE BRIDGE GUARD RAIL.  IT IS 3.3 FEET NORTHWEST OF SOUTHEAST OF
AG8045'NORTHBOUND LANE WEST BRIDGE RAIL, 9.8 FEET SOUTHEAST OF EXPANSION
AG8045'JOINT IN BRIDGE RAIL AND 19.5 FEET SOUTHWEST OF CENTERLINE OF NORTH
AG8045'BOUND LANE.
AG8045'
AG8045'REFERENCE MARK NUMBER 2 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8045'BRASS DISK, STAMPED---I75 83 A02 RM NO 2---, SET FLUSH IN DRILL HOLE
AG8045'IN TOP OF CONCRETE BRIDGE RAIL. IT IS 4.0 FEET NORTHWEST OF SOUTHEAST
AG8045'END OF SOUTHBOUND LANE EAST BRIDGE RAIL, 9.0 FEET SOUTHEAST OF AN
AG8045'EXPANSION JOINT IN BRIDGE RAIL AND 19.5 FEET NORTHEAST OF CENTERLINE
AG8045'I75 SOUTHBOUND LANE.
AG8045
AG8045                          STATION RECOVERY (1983)
AG8045
AG8045'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983
AG8045'23.8 MI SE FROM VENICE.
AG8045'FROM THE INTERSECTION OF INTERSTATE ROUTE 75 AND VENICE EAST ROAD,
AG8045'ABOUT 4.0 MILES EAST OF VENICE, GO EASTERLY ALONG INTERSTATE ROUTE 75
AG8045'FOR 16.0 MILES TO THE POINT WHERE THE INTERSTATE TURNS SOUTHEAST,
AG8045'CONTINUE SOUTHEAST ALONG THE INTERSTATE FOR 3.8 MILES TO THE YORKSHIRE
AG8045'STREET UNDERPASS AND THE MARK.  IT IS 56.0 FEET SOUTHWEST OF THE
AG8045'CENTER OF INTERSTATE ROUTE 75 NORTHBOUND LANES, 37.0 FEET SOUTHWEST OF
AG8045'THE METAL GUARDRAIL, 36.5 FEET SOUTHWEST OF THE SOUTHEAST END OF THE
AG8045'SOUTHWEST CONCRETE GUARDRAIL OF THE NORTHBOUND BRIDGE, 6.0 FEET
AG8045'SOUTHEAST OF THE SOUTHEAST CONCRETE GUARDWALL BETWEEN THE BRIDGES.
AG8045'THE MARK IS 4.0 FT  SE FROM A WITNESS POST.
AG8045
AG8045                          STATION RECOVERY (1992)
AG8045
AG8045'RECOVERY NOTE BY SARASOTA COUNTY FLORIDA 1992
AG8045'TO REACH THE STATION FROM THE INTERSECTION OF STATE ROAD 769 (KINGS
```

```
AG8045'HIGHWAY) AND THE NORTHBOUND LANE OF INTERSTATE 75 IN CHARLOTTE COUNTY
AG8045', GO NORTHWESTERLY ON INTERSTATE 75, 3.5 MI (5.63 KM) TO THE STATION
AG8045'ON THE LEFT.
AG8045'THE STATION IS A FLDT SURVEY DISK STAMPED ---I75 83 A01--- SET IN A
AG8045'12-INCH ROUND CONCRETE MONUMENT THAT IS 6-INCHES BELOW THE GROUND. IT
AG8045'IS 40.6 FT (12.37 M) NORTHEAST OF THE NORTHEAST EDGE OF PAVEMENT OF
AG8045'THE SOUTHBOUND LANE OF INTERSTATE 75 AND 5.9 FT (1.80 M) SOUTHEAST OF
AG8045'THE SOUTHERLY CONCRETE RETAINING WALL OF NORTH YORKSHIRE BOULEVARD
AG8045'AND INTERSTATE 75 OVERPASS.
AG8045'REFERENCES--
AG8045'FLDT DISK STAMPED ---I75 83 A01 RM NO 1--- SET IN THE TOP OF A
AG8045'CONCRETE RETAINING WALL, 37.77 FT (11.51 M) NORTHWEST OF THE STATION.
AG8045'FDLT DISK STAMPED ---I75 83 A01 RM NO 2--- SET IN THE TOP OF A
AG8045'CONCRETE RETAINING WALL, 38.20 FT (11.64 M) SOUTHWEST OF THE STATION.
AG8045
AG8045                          STATION RECOVERY (2001)
AG8045
AG8045'RECOVERY NOTE BY US POWER SQUADRON 2001 (MDB)
AG8045'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:01
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.61
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 16, 2008
 AG8216 ***********************************************************************
 AG8216  DESIGNATION -  I75 83 A34
 AG8216  PID         -  AG8216
 AG8216  STATE/COUNTY-  FL/SARASOTA
 AG8216  USGS QUAD   -  LAUREL (1987)
 AG8216
 AG8216                         *CURRENT SURVEY CONTROL
 AG8216  ______________________________________________________________________
 AG8216* NAD 83(2007)-  27 09 13.80532(N)    082 25 22.05036(W)     ADJUSTED
 AG8216* NAVD 88     -         8.946  (meters)      29.35   (feet)  ADJUSTED
 AG8216  ______________________________________________________________________
 AG8216  EPOCH DATE  -        2002.00
 AG8216  X           -     748,859.787 (meters)                     COMP
 AG8216  Y           -  -5,629,524.284 (meters)                     COMP
 AG8216  Z           -   2,893,386.020 (meters)                     COMP
 AG8216  LAPLACE CORR-          -0.37  (seconds)                    DEFLEC99
 AG8216  ELLIP HEIGHT-         -15.147 (meters)          (02/10/07) ADJUSTED
 AG8216  GEOID HEIGHT-         -24.02  (meters)                     GEOID03
 AG8216  DYNAMIC HT  -           8.932 (meters)      29.30  (feet)  COMP
 AG8216
 AG8216  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AG8216  Type    PID    Designation                       North   East  Ellip
 AG8216  ----------------------------------------------------------------------
 AG8216  NETWORK AG8216 I75 83 A34                          2.31   2.29   6.23
 AG8216  ----------------------------------------------------------------------
 AG8216  MODELED GRAV-     979,128.3   (mgal)                      NAVD 88
 AG8216
 AG8216  VERT ORDER  -  SECOND    CLASS II
 AG8216
 AG8216.The horizontal coordinates were established by GPS observations
 AG8216.and adjusted by the National Geodetic Survey in February 2007.
 AG8216
 AG8216.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AG8216.See National Readjustment for more information.
 AG8216.The horizontal coordinates are valid at the epoch date displayed above.
 AG8216.The epoch date for horizontal control is a decimal equivalence
 AG8216.of Year/Month/Day.
 AG8216
 AG8216.The orthometric height was determined by differential leveling
 AG8216.and adjusted in June 1991.
 AG8216
 AG8216.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AG8216
 AG8216.The Laplace correction was computed from DEFLEC99 derived deflections.
 AG8216
 AG8216.The ellipsoidal height was determined by GPS observations
 AG8216.and is referenced to NAD 83.
 AG8216
 AG8216.The geoid height was determined by GEOID03.
```

```
 AG8216
 AG8216.The dynamic height is computed by dividing the NAVD 88
 AG8216.geopotential number by the normal gravity value computed on the
 AG8216.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AG8216.degrees latitude (g = 980.6199 gals.).
 AG8216
 AG8216.The modeled gravity was interpolated from observed gravity values.
 AG8216
 AG8216;                    North         East     Units Scale Factor Converg.
 AG8216;SPC FL W     -   312,519.236   158,095.345   MT  0.99996285   -0 11
34.6
 AG8216;SPC FL W     - 1,025,323.53    518,684.48    sFT  0.99996285   -0 11
34.6
 AG8216;UTM  17      - 3,004,273.014   359,021.529   MT  0.99984535   -0 38
58.0
 AG8216
 AG8216!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AG8216!SPC FL W     -   1.00000238  x   0.99996285  =   0.99996523
 AG8216!UTM  17      -   1.00000238  x   0.99984535  =   0.99984773
 AG8216
 AG8216:                Primary Azimuth Mark                    Grid Az
 AG8216:SPC FL W     -  I75 83 A33                              148 01 41.3
 AG8216:UTM  17      -  I75 83 A33                              148 29 04.7
 AG8216
 AG8216|-----------------------------------------------------------------------|
 AG8216| PID    Reference Object                    Distance      Geod. Az  |
 AG8216|                                                          dddmmss.s |
 AG8216| AG8211 I75 83 A33                        APPROX. 0.9 KM 1475006.7 |
 AG8216| AG8215 I75 83 A34 RM 1                    10.094 METERS 15520     |
 AG8216| AG8217 I75 83 A34 RM 2                    10.349 METERS 32530     |
 AG8216| AG8223 I75 83 A35                        APPROX. 1.3 KM 3293051.7 |
 AG8216|-----------------------------------------------------------------------|
 AG8216
 AG8216                          SUPERSEDED SURVEY CONTROL
 AG8216
 AG8216  NAD 83(1999)-  27 09 13.80514(N)    082 25 22.05174(W) AD(       ) 1
 AG8216  ELLIP H (06/19/01)  -15.068  (m)                       GP(       ) 4 1
 AG8216  NAD 83(1990)-  27 09 13.80370(N)    082 25 22.05107(W) AD(       ) 1
 AG8216  ELLIP H (05/09/94)  -15.018  (m)                       GP(       ) 4 2
 AG8216  NAD 83(1990)-  27 09 13.80181(N)    082 25 22.05356(W) AD(       ) 2
 AG8216  NAD 83(1986)-  27 09 13.80076(N)    082 25 22.06469(W) AD(       ) 2
 AG8216  NAVD 88 (05/09/94)    8.95   (m)           29.4    (f) LEVELING    3
 AG8216  NGVD 29 (09/01/92)    9.283  (m)           30.46   (f) ADJUSTED    2 2
 AG8216
 AG8216.Superseded values are not recommended for survey control.
 AG8216.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AG8216.See file dsdata.txt to determine how the superseded data were derived.
 AG8216
 AG8216_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RLL5902204273(NAD 83)
 AG8216_MARKER: DH = HORIZONTAL CONTROL DISK
 AG8216_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AG8216_SP_SET: CONCRETE POST
 AG8216_STAMPING: I75 83 A34
 AG8216_MARK LOGO: FLDT
 AG8216_PROJECTION: RECESSED 8 CENTIMETERS
 AG8216_MAGNETIC: N = NO MAGNETIC MATERIAL
 AG8216_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
```

```
AG8216+STABILITY: SURFACE MOTION
AG8216_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
AG8216+SATELLITE: SATELLITE OBSERVATIONS - May 28, 1992
AG8216
AG8216  HISTORY     - Date     Condition        Report By
AG8216  HISTORY     - 1983     MONUMENTED       FLDT
AG8216  HISTORY     - 1983     GOOD             FLDT
AG8216  HISTORY     - 19920528 GOOD             FL-115
AG8216
AG8216                          STATION DESCRIPTION
AG8216
AG8216'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983 (CBM)
AG8216'STATION IS LOCATED ABOUT 4 MILES NORTHEAST OF VENICE AND ABOUT 5-1/2
AG8216'MILES SOUTHEAST OF OSPREY.  IT IS ON NORTHEAST SHOULDER OF INTERSTATE
AG8216'ROUTE 75 SOUTHBOUND LANE AT SOUTH END OF METAL GUARD RAIL.
AG8216'
AG8216'TO REACH STATION FROM INTERSTATE ROUTE 75 AND STATE ROUTE 777 (RIVER
AG8216'ROAD) INTERCHANGE.  GO NORTHERLY ON INTERSTATE ROUTE 75 FOR ABOUT
AG8216'6.05 MILES TO INTERSTATE ROUTE 75 BRIDGE OVER COW PEN SLOUGH.
AG8216'
AG8216'STATION MARK IS A FLORIDA DEPARTMENT OF TRANSPORTATION BRASS DISK,
AG8216'STAMPED---I75 83 A34---, SET IN TOP OF ROUND CONCRETE MONUMENT THAT IS
AG8216'3 INCHES BELOW GROUND.  IT IS 1.7 FEET NORTHEAST OF METAL WITNESS POST
AG8216'5.7 FEET NORTHEAST OF METAL GUARDRAIL AND 23.6 FEET NORTHEAST OF
AG8216'CENTER OF INTERSTATE ROUTE 75 SOUTHBOUND LANE.
AG8216'
AG8216'REFERENCE MARK NUMBER 1 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8216'BRASS DISK, STAMPED---I75 83 A34 RM NO 1---, SET IN TOP OF ROUND
AG8216'CONCRETE MONUMENT THAT IS 4 INCHES BELOW GROUND.  IT IS 19.5 FEET
AG8216'NORTHEAST OF INTERSTATE ROUTE 75 SOUTHBOUND LANE AND 32.2 FEET
AG8216'SOUTH-SOUTHWEST OF METAL GUARDRAIL.
AG8216'
AG8216'REFERENCE MARK NUMBER 2 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8216'BRASS DISK, STAMPED---I75 83 A34 RM NO 2---, SET IN TOP OF ROUND
AG8216'CONCRETE MONUMENT THAT IS 2 INCHES BELOW GROUND.  IT IS 1.0 FOOT
AG8216'NORTHEAST OF METAL WITNESS POST, 23.6 FEET NORTHEAST OF METAL
AG8216'GUARDRAIL AND 35.6 FEET NORTHEAST OF CENTER OF INTERSTATE ROUTE 75
AG8216'SOUTHBOUND LANE.
AG8216
AG8216                          STATION RECOVERY (1983)
AG8216
AG8216'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983
AG8216'7.8 MI NE FROM VENICE.
AG8216'FROM THE INTERSECTION OF INTERSTATE ROUTE 75 AND VENICE EAST ROAD,
AG8216'ABOUT 4.0 MILES EAST OF VENICE, GO NORTHWESTERLY ALONG INTERSTATE
AG8216'ROUTE 75 FOR 3.75 MILES AND THE MARK, ON THE NORTHEAST SHOULDER OF THE
AG8216'SOUTHBOUND LANES.  IT IS ABOUT 0.1 MILE SOUTHEAST OF THE SOUTHBOUND
AG8216'BRIDGE OVER COW PEN SLOUGH CANAL, 23.6 FEET NORTHEAST OF THE CENTER OF
AG8216'THE SOUTHBOUND LANES AND 5.7 FEET NORTHEAST OF A METAL GUARDRAIL.
AG8216'THE MARK IS 1.7 FT  NE FROM A WITNESS POST.
AG8216
AG8216                          STATION RECOVERY (1992)
AG8216
AG8216'RECOVERY NOTE BY SARASOTA COUNTY FLORIDA 1992
AG8216'TO REACH THE STATION FROM THE INTERSECTION OF JACARANDA BOULEVARD AND
AG8216'INTERSTATE 75 IN SARASOTA COUNTY, GO NORTH ON INTERSTATE 75, 3.8 MI
AG8216'(6.12 KM) TO THE STATION ON THE LEFT.
```

```
AG8216'THE STATION IS A FLDT SURVEY DISK STAMPED ---I75 83 A34--- SET IN A
AG8216'12-INCH ROUND CONCRETE MONUMENT THAT 6-INCHES BELOW GROUND. IT IS 7.8
AG8216'FT (2.38 M) NORTHEASTERLY OF THE NORTHERLY EDGE OF ASPHALT PAVEMENT
AG8216'ROAD BED FOR THE SOUTH BOUND LANES OF INTERSTATE 75 AND 450 FT
AG8216'(137.16 M) SOUTHEASTERLY OF THE COW PEN SLOUGH OVERPASS.
AG8216'REFERENCES--
AG8216'FLDT DISK STAMPED ---I75 83 A34 RM NO 1--- SET IN A 12-INCH ROUND
AG8216'CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND. IT IS 33.10 FT
AG8216'(10.09 M) SOUTHEASTERLY OF THE STATION.
AG8216'FLDT DISK STAMPED ---I75 83 A34 RM NO 2--- SET IN A 12-INCH ROUND
AG8216'CONCRETE MONUMENT THAT IS FLUSH WITH THE GROUND. IT IS 33.95 FT
AG8216'(10.35 M)NORTHWESTERLY OF THE STATION.

*** retrieval complete.
Elapsed Time = 00:00:01
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.61
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 16, 2008
 AG8255 ***********************************************************************
 AG8255  DESIGNATION -  I75 83 A44
 AG8255  PID         -  AG8255
 AG8255  STATE/COUNTY-  FL/SARASOTA
 AG8255  USGS QUAD   -  BEE RIDGE (1987)
 AG8255
 AG8255                         *CURRENT SURVEY CONTROL
 AG8255  ______________________________________________________________________
 AG8255* NAD 83(2007)-  27 16 08.53288(N)    082 26 56.31547(W)     ADJUSTED
 AG8255* NAVD 88     -        17.038  (meters)      55.90   (feet)  ADJUSTED
 AG8255  ______________________________________________________________________
 AG8255  EPOCH DATE  -        2002.00
 AG8255  X           -     745,520.823 (meters)                     COMP
 AG8255  Y           -  -5,624,086.328 (meters)                     COMP
 AG8255  Z           -   2,904,742.010 (meters)                     COMP
 AG8255  LAPLACE CORR-          -0.80  (seconds)                    DEFLEC99
 AG8255  ELLIP HEIGHT-          -7.242 (meters)          (02/10/07) ADJUSTED
 AG8255  GEOID HEIGHT-         -24.24  (meters)                     GEOID03
 AG8255  DYNAMIC HT  -          17.012 (meters)      55.81  (feet)  COMP
 AG8255
 AG8255  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AG8255  Type    PID    Designation                      North   East  Ellip
 AG8255  ----------------------------------------------------------------------
 AG8255  NETWORK AG8255 I75 83 A44                         2.33   2.33   6.84
 AG8255  ----------------------------------------------------------------------
 AG8255  MODELED GRAV-     979,126.8   (mgal)                     NAVD 88
 AG8255
 AG8255  VERT ORDER  -  FIRST     CLASS II
 AG8255
 AG8255.The horizontal coordinates were established by GPS observations
 AG8255.and adjusted by the National Geodetic Survey in February 2007.
 AG8255
 AG8255.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AG8255.See National Readjustment for more information.
 AG8255.The horizontal coordinates are valid at the epoch date displayed above.
 AG8255.The epoch date for horizontal control is a decimal equivalence
 AG8255.of Year/Month/Day.
 AG8255
 AG8255.The orthometric height was determined by differential leveling
 AG8255.and adjusted in May 2008.
 AG8255
 AG8255.Photographs are available for this station.
 AG8255
 AG8255.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AG8255
 AG8255.The Laplace correction was computed from DEFLEC99 derived deflections.
 AG8255
 AG8255.The ellipsoidal height was determined by GPS observations
 AG8255.and is referenced to NAD 83.
```

```
 AG8255
 AG8255.The geoid height was determined by GEOID03.
 AG8255
 AG8255.The dynamic height is computed by dividing the NAVD 88
 AG8255.geopotential number by the normal gravity value computed on the
 AG8255.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AG8255.degrees latitude (g = 980.6199 gals.).
 AG8255
 AG8255.The modeled gravity was interpolated from observed gravity values.
 AG8255
 AG8255;                    North         East     Units Scale Factor Converg.
 AG8255;SPC FL W     -   325,292.908   155,545.775   MT  0.99996556   -0 12
20.6
 AG8255;SPC FL W     - 1,067,231.82    510,319.76    sFT  0.99996556   -0 12
20.6
 AG8255;UTM  17      - 3,017,065.166   356,574.289   MT  0.99985394   -0 39
50.4
 AG8255
 AG8255!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AG8255!SPC FL W     -   1.00000114  x   0.99996556  =   0.99996670
 AG8255!UTM  17      -   1.00000114  x   0.99985394  =   0.99985508
 AG8255
 AG8255|-----------------------------------------------------------------------|
 AG8255| PID    Reference Object                    Distance      Geod. Az  |
 AG8255|                                                          dddmmss.s |
 AG8255| AG8256 I75 83 A44 RM 1                      9.797 METERS 08110     |
 AG8255| AG8257 I75 83 A44 RM 2                      9.826 METERS 27950     |
 AG8255|-----------------------------------------------------------------------|
 AG8255
 AG8255                          SUPERSEDED SURVEY CONTROL
 AG8255
 AG8255  NAD 83(1999)-  27 16 08.53262(N)    082 26 56.31665(W) AD(       ) 1
 AG8255  ELLIP H (06/19/01)   -7.194  (m)                       GP(       ) 4 1
 AG8255  NAD 83(1990)-  27 16 08.53126(N)    082 26 56.31596(W) AD(       ) 1
 AG8255  ELLIP H (05/09/94)   -7.118  (m)                       GP(       ) 4 2
 AG8255  NAD 83(1990)-  27 16 08.53362(N)    082 26 56.31561(W) AD(       ) 2
 AG8255  NAD 83(1986)-  27 16 08.53260(N)    082 26 56.32721(W) AD(       ) 2
 AG8255  NAVD 88 (06/15/91)   17.064  (m)           55.98   (f) UNKNOWN     2 2
 AG8255  NGVD 29 (09/01/92)   17.395  (m)           57.07   (f) ADJUSTED    2 2
 AG8255
 AG8255.Superseded values are not recommended for survey control.
 AG8255.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AG8255.See file dsdata.txt to determine how the superseded data were derived.
 AG8255
 AG8255_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RLL5657417065(NAD 83)
 AG8255_MARKER: DD = SURVEY DISK
 AG8255_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AG8255_SP_SET: CONCRETE POST
 AG8255_STAMPING: I75 83 A44
 AG8255_MARK LOGO: FLDT
 AG8255_PROJECTION: RECESSED 8 CENTIMETERS
 AG8255_MAGNETIC: N = NO MAGNETIC MATERIAL
 AG8255_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AG8255+STABILITY: SURFACE MOTION
 AG8255_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AG8255+SATELLITE: SATELLITE OBSERVATIONS - December 06, 2005
 AG8255
```

```
AG8255  HISTORY     - Date     Condition        Report By
AG8255  HISTORY     - 1983     MONUMENTED       FLDT
AG8255  HISTORY     - 1983     GOOD             FLDT
AG8255  HISTORY     - 19920608 GOOD             FL-115
AG8255  HISTORY     - 20020228 GOOD             USPSQD
AG8255  HISTORY     - 20030310 GOOD             USPSQD
AG8255  HISTORY     - 20050818 GOOD             FLDEP
AG8255  HISTORY     - 20051206 GOOD             JCLS
AG8255
AG8255                          STATION DESCRIPTION
AG8255
AG8255'DESCRIBED BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983 (CBM)
AG8255'STATION IS LOCATED ABOUT 5 MILES NORTHEAST OF OSPREY AND ABOUT 7 MILES
AG8255'SOUTHEAST OF SARASOTA
AG8255'
AG8255'THE STATION IS LOCATED IN THE INTERSTATE ROUTE 75 AND STATE ROUTE 72
AG8255'INTERCHANGE AT SOUTH SIDE OF INTERSTATE ROUTE 75 BRIDGE OVER STATE
AG8255'ROUTE 72 IN MEDIAN.
AG8255'
AG8255'STATION MARK IS A FLORIDA DEPARTMENT OF TRANSPORTATION BRASS DISK,
AG8255'STAMPED---I75 83 A44---, SET IN TOP OF ROUND CONCRETE MONUMENT THAT IS
AG8255'6 INCHES BELOW GROUND.  IT IS 4.5 FEET SOUTH OF METAL WITNESS POST,
AG8255'5.0 FEET SOUTH OF SOUTH END OF ABUTMENT, 32.5 FEET WEST OF WEST EDGE
AG8255'OF CONCRETE PAVEMENT NORTHBOUND LANE AND 34.0 FEET EAST OF EAST EDGE
AG8255'CONCRETE PAVEMENT SOUTHBOUND LANE.
AG8255'
AG8255'REFERENCE MARK NUMBER 1 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8255'BRASS DISK, STAMPED---I75 83 A44 RM NO 1---, SET FLUSH IN TOP OF
AG8255'CONCRETE ABUTMENT.  IT IS 0.4 FOOT NORTH OF SOUTH EDGE OF CONCRETE
AG8255'ABUTMENT, 0.6 FEET WEST OF EAST END OF CONCRETE ABUTMENT AND 1.7 FEET
AG8255'WEST OF METAL GUARDRAIL.
AG8255'
AG8255'REFERENCE MARK NUMBER 2 IS A FLORIDA DEPARTMENT OF TRANSPORTATION
AG8255'BRASS DISK, STAMPED---I75 83 A44 RM NO 2---, SET FLUSH IN TOP OF
AG8255'CONCRETE ABUTMENT.  IT IS 0.4 FOOT NORTH OF SOUTH EDGE OF CONCRETE
AG8255'ABUTMENT, 0.6 FOOT EAST OF WEST END OF CONCRETE ABUTMENT AND 1.6 FEET
AG8255'EAST OF EAST EDGE CONCRETE PAVEMENT SOUTHBOUND LANE.
AG8255
AG8255                          STATION RECOVERY (1983)
AG8255
AG8255'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 1983
AG8255'7.7 MI SE FROM SARASOTA.
AG8255'FROM THE INTERSECTION OF INTERSTATE ROUTE 75 AND STATE ROAD 780, ABOUT
AG8255'3.0 MILES EAST OF SARASOTA, GO SOUTH ALONG INTERSTATE ROUTE 75 FOR
AG8255'4.65 MILES TO THE INTERSECTION OF STATE ROAD 72 AND THE MARK.  IT IS
AG8255'34.0 FEET EAST OF THE EAST EDGE OF THE CONCRETE DRIVING PAVEMENT OF
AG8255'THE SOUTHBOUND LANES, 32.5 FEET WEST OF THE WEST EDGE OF THE CONCRETE
AG8255'DRIVING PAVEMENT OF THE NORTHBOUND LANES AND 5.0 FEET SOUTH OF THE
AG8255'SOUTH CONCRETE GUARDRAIL BETWEEN THE NORTH AND SOUTHBOUND BRIDGES.
AG8255'THE MARK IS 4.5 FT  S FROM A WITNESS POST.
AG8255
AG8255                          STATION RECOVERY (1992)
AG8255
AG8255'RECOVERY NOTE BY SARASOTA COUNTY FLORIDA 1992
AG8255'TO REACH THE STATION FRON THE INTERSECTION OF STATE ROAD 681 AND
AG8255'INTERSTATE 75 IN SARASOTA COUNTY, GO NORTH ON INTERSTATE 75, 5.5 MI
AG8255'(8.85 KM) TO THE STATION ON THE LEFT.
```

```
AG8255'THE STATION IS A FLDT SURVEY DISK STAMPED ---I75 83 A44--- SET IN A
AG8255'12-INCH ROUND CONCRETE MONUMENT THAT IS 6-INCHES BELOW GROUND. IT IS
AG8255'4.8 FT (1.46 M) SOUTHERLY OF THE SOUTHERLY EDGE OF A CONCRETE
AG8255'RETAINING WALL FOR THE STATE ROAD 72 (CLARK ROAD) OVERPASS.
AG8255'REFERENCES--
AG8255'REFERENCE MARK NUMBER 1 IS A DRILL HOLE IN THE SOUTHEASTERLY CORNER OF
AG8255'THE CONCRETE RETAINING WALL FOR THE STATE ROAD 72 (CLARK ROAD)
AG8255'OVERPASS. IT IS 32.12 FT (9.79 M) NORTHEASTERLY OF THE STATION.
AG8255'FLDT DISK STAMPED ---I75 83 A44 RM NO 2--- SET IN THE SOUTHWESTERLY
AG8255'CORNER OF THE CONCRETE RETAINING WALL FOR THE STATE ROAD 72 (CLARK
AG8255'ROAD) OVERPASS. IT IS 32.24 FT (9.83 M) NORTHWESTERLY OF THE STATION.
AG8255
AG8255                          STATION RECOVERY (2002)
AG8255
AG8255'RECOVERY NOTE BY US POWER SQUADRON 2002
AG8255'RECOVERED IN GOOD CONDITION.
AG8255
AG8255                          STATION RECOVERY (2003)
AG8255
AG8255'RECOVERY NOTE BY US POWER SQUADRON 2003 (BAS)
AG8255'RECOVERED IN GOOD CONDITION.
AG8255
AG8255                          STATION RECOVERY (2005)
AG8255
AG8255'RECOVERY NOTE BY FL DEPT OF ENV PRO 2005 (BPJ)
AG8255'RECOVERED AS DESCRIBED.
AG8255
AG8255                          STATION RECOVERY (2005)
AG8255
AG8255'RECOVERY NOTE BY JOHN CHANCE LAND SURVEYS INC 2005
AG8255'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
Elapsed Time = 00:00:01
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.61
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 16, 2008
 AG7631 ***********************************************************************
 AG7631  CBN         -  This is a Cooperative Base Network Control Station.
 AG7631  TIDAL BM    -  This is a Tidal Bench Mark.
 AG7631  DESIGNATION -  LORAN
 AG7631  PID         -  AG7631
 AG7631  STATE/COUNTY-  FL/SARASOTA
 AG7631  USGS QUAD   -  VENICE (1987)
 AG7631
 AG7631                        *CURRENT SURVEY CONTROL
 AG7631  ______________________________________________________________________
 AG7631* NAD 83(2007)-  27 04 38.92549(N)    082 27 01.59084(W)     ADJUSTED
 AG7631* NAVD 88     -         3.672  (meters)      12.05   (feet)  ADJUSTED
 AG7631  ______________________________________________________________________
 AG7631  EPOCH DATE  -        2002.00
 AG7631  X           -     746,649.012 (meters)                     COMP
 AG7631  Y           -  -5,633,703.261 (meters)                     COMP
 AG7631  Z           -   2,885,853.007 (meters)                     COMP
 AG7631  LAPLACE CORR-           0.05  (seconds)                    DEFLEC99
 AG7631  ELLIP HEIGHT-         -20.314 (meters)          (02/10/07) ADJUSTED
 AG7631  GEOID HEIGHT-         -23.89  (meters)                     GEOID03
 AG7631  DYNAMIC HT  -           3.666 (meters)      12.03  (feet)  COMP
 AG7631
 AG7631  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AG7631  Type    PID    Designation                       North   East  Ellip
 AG7631  ----------------------------------------------------------------------
 AG7631  NETWORK AG7631 LORAN                              2.16   2.20   6.17
 AG7631  ----------------------------------------------------------------------
 AG7631  MODELED GRAV-     979,126.2   (mgal)                     NAVD 88
 AG7631
 AG7631  VERT ORDER  -  SECOND    CLASS I
 AG7631
 AG7631.The horizontal coordinates were established by GPS observations
 AG7631.and adjusted by the National Geodetic Survey in February 2007.
 AG7631
 AG7631.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AG7631.See National Readjustment for more information.
 AG7631.The horizontal coordinates are valid at the epoch date displayed above.
 AG7631.The epoch date for horizontal control is a decimal equivalence
 AG7631.of Year/Month/Day.
 AG7631
 AG7631.The orthometric height was determined by differential leveling
 AG7631.and adjusted in June 1991.
 AG7631
 AG7631.This Tidal Bench Mark is designated as VM 11358
 AG7631.by the Center for Operational Oceanographic Products and Services.
 AG7631
 AG7631.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AG7631
 AG7631.The Laplace correction was computed from DEFLEC99 derived deflections.
```

```
 AG7631
 AG7631.The ellipsoidal height was determined by GPS observations
 AG7631.and is referenced to NAD 83.
 AG7631
 AG7631.The geoid height was determined by GEOID03.
 AG7631
 AG7631.The dynamic height is computed by dividing the NAVD 88
 AG7631.geopotential number by the normal gravity value computed on the
 AG7631.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AG7631.degrees latitude (g = 980.6199 gals.).
 AG7631
 AG7631.The modeled gravity was interpolated from observed gravity values.
 AG7631
 AG7631;                    North         East     Units Scale Factor Converg.
 AG7631;SPC FL W     -   304,068.512   155,324.477   MT  0.99996581   -0 12
18.2
 AG7631;SPC FL W     -   997,598.11    509,593.72   sFT  0.99996581   -0 12
18.2
 AG7631;UTM  17      - 2,995,845.566   356,183.831   MT  0.99985533   -0 39
37.3
 AG7631
 AG7631!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AG7631!SPC FL W     -   1.00000319  x   0.99996581  =   0.99996900
 AG7631!UTM  17      -   1.00000319  x   0.99985533  =   0.99985852
 AG7631
 AG7631                          SUPERSEDED SURVEY CONTROL
 AG7631
 AG7631  NAD 83(1999)-  27 04 38.92532(N)    082 27 01.59240(W) AD(       ) B
 AG7631  ELLIP H (05/31/01)  -20.210  (m)                       GP(       ) 5 1
 AG7631  NAD 83(1990)-  27 04 38.92392(N)    082 27 01.59185(W) AD(       ) B
 AG7631  ELLIP H (09/13/90)  -20.183  (m)                       GP(       ) 4 1
 AG7631  NAD 27      -  27 04 37.71000(N)    082 27 02.27200(W) AD(       ) 3
 AG7631  NAVD 88 (06/02/94)    3.67   (m)           12.0    (f) LEVELING    3
 AG7631  NAVD 88 (05/09/94)    3.63   (m)           11.9    (f) LEVELING    3
 AG7631  NGVD 29 (09/13/90)    4.02   (m)           13.2    (f) LEVELING    3
 AG7631
 AG7631.Superseded values are not recommended for survey control.
 AG7631.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AG7631.See file dsdata.txt to determine how the superseded data were derived.
 AG7631
 AG7631_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RLK5618495846(NAD 83)
 AG7631_MARKER: DE = TRAVERSE STATION DISK
 AG7631_SETTING: 9 = SET IN PREFABRICATED CONCRETE POST IMBEDDED IN GROUND
 AG7631_SP_SET: PREFAB CONC. POST IN EARTH
 AG7631_STAMPING: LORAN 1954
 AG7631_MARK LOGO: CGS
 AG7631_PROJECTION: PROJECTING 15 CENTIMETERS
 AG7631_MAGNETIC: N = NO MAGNETIC MATERIAL
 AG7631_STABILITY: D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY
 AG7631_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AG7631+SATELLITE: SATELLITE OBSERVATIONS - September 16, 1992
 AG7631
 AG7631  HISTORY     - Date     Condition        Report By
 AG7631  HISTORY     - 1954     MONUMENTED       CGS
 AG7631  HISTORY     - 1978     GOOD             NGS
 AG7631  HISTORY     - 1982     GOOD             FLDNR
 AG7631  HISTORY     - 1983     GOOD             FLDNR
```

```
AG7631  HISTORY     - 1984     GOOD             FLDNR
AG7631  HISTORY     - 1989     GOOD             NGS
AG7631  HISTORY     - 19900616 GOOD             FLDNR
AG7631  HISTORY     - 19920916 GOOD             FL-115
AG7631  HISTORY     - 20020215 GOOD             USPSQD
AG7631
AG7631                          STATION DESCRIPTION
AG7631
AG7631'DESCRIBED BY COAST AND GEODETIC SURVEY 1954 (IRR)
AG7631'THE STATION IS LOCATED AT THE U.S.A.F. LORAN STATION SITUATED IN THE
AG7631'NW CORNER OF THE VENICE MUNICIPAL AIRPORT.  IT IS EXACTLY MIDWAY AND
AG7631'ON LINE BETWEEN THE LORAN TRANSMISSION ANTENNAS, 170 FEET NE OF THE SE
AG7631'CORNER OF A CONCRETE BLOCK BUILDING (THE MOST N BUILDING AT THE
AG7631'STATION) AND 212 FEET NORTH-NORTHEAST OF THE NORTHEAST CORNER OF A
AG7631'CONCRETE BLOCK BUILDING (THE MOST SOUTH BUILDING AT THE STATION).
AG7631'
AG7631'IT IS A STANDARD DISK, STAMPED LORAN 1954, SET IN TOP OF AN 8-INCH
AG7631'SQUARE CONCRETE POST APPROXIMATELY 0.05 FOOT UNDERGROUND.
AG7631'
AG7631'TO REACH THE STATION FROM THE POST OFFICE IN VENICE, GO SOUTH ONE
AG7631'BLOCK TO VENICE AVENUE, THEN TURN LEFT AND GO EAST ONE BLOCK, TURN
AG7631'RIGHT AND GO SOUTH FOR 1.5 MILES TO A T-INTERSECTION.  TURN RIGHT AT
AG7631'THE INTERSECTION AND GO WEST FOR 0.4 MILE TO THE LORAN STATION AND THE
AG7631'STATION SITE AS DESCRIBED.
AG7631
AG7631                          STATION RECOVERY (1978)
AG7631
AG7631'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1978 (RST)
AG7631'STATION WAS RECOVERED AS DESCRIBED.
AG7631
AG7631                          STATION RECOVERY (1982)
AG7631
AG7631'RECOVERY NOTE BY FL DEPT OF NAT RES 1982
AG7631'IN VENICE.
AG7631'BEGIN AT THE VENICE AIRPORT, GO 0.8 MILE WESTERLY ON AVENUE E TO
AG7631'HARBOR DRIVE, THENCE 0.2 MILE SOUTH ALONG HARBOR DRIVE TO THE ENTRANCE
AG7631'OF THE OLD VENICE COAST GUARD STATION.  THE MARK BEARS 98.7 FEET NORTH
AG7631'OF THE CENTERLINE OF THE ENTRANCE DRIVE TO THE OLD COAST GUARD
AG7631'STATION, 20.2 FEET NORTHEAST OF THE NORTHEAST CORNER OF A CONCRETE PAD
AG7631'FOR A FORMER HIGH VOLTAGE TRANSFORMER, 156 FEET NORTHEAST OF A
AG7631'FLAGPOLE, 77.5 FEET WEST-NORTHWEST OF BENCH MARK IWSA 1 1950, AND 0.3
AG7631'FOOT EAST OF A WITNESS POST.
AG7631
AG7631                          STATION RECOVERY (1983)
AG7631
AG7631'RECOVERY NOTE BY FL DEPT OF NAT RES 1983
AG7631'RECOVERED IN GOOD CONDITION.
AG7631
AG7631                          STATION RECOVERY (1984)
AG7631
AG7631'RECOVERY NOTE BY FL DEPT OF NAT RES 1984 (JGC)
AG7631'LORAN 1954 RECOVERED GOOD.
AG7631
AG7631                          STATION RECOVERY (1989)
AG7631
AG7631'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1989
AG7631'THE STATION IS LOCATED ABOUT 0.96 KM (0.60 MI) WEST OF THE VENICE
```

```
AG7631'MUNICIPAL AIRPORT, AT AN OPEN GRASSY AREA, AT THE SITE OF THE OLD
AG7631'VENICE COAST GUARD STATION.  ABOUT 0.08 KM (0.05 MI) WEST OF HARBOR
AG7631'DRIVE, AND ABOUT 0.16 KM (0.10 MI) SOUTH OF THE JUNCTION OF HARBOR
AG7631'DRIVE AND AIRPORT AVE. E (BEACH ROAD).  OWNERSHIP--U.S. GOVERNMENT.
AG7631'TO REACH THE STATION FROM THE JUNCTION OF U.S. HIGHWAY 41 BUSINESS
AG7631'ROUTE AND AVE DEL CIRCO, LOCATED ABOUT 1.3 KM (0.80 MI) WEST OF THE
AG7631'JUNCTION OF U.S. HIGHWAY 41 AND U.S. HIGHWAY 41 BUSINESS ROUTE, AT THE
AG7631'SOUTH EDGE OF VENICE, GO SOUTH ALONG AVENUE DEL CIRCO FOR 0.48 KM
AG7631'(0.30 MI) TO THE JUNCTION OF AIRPORT ROAD, THEN GO RIGHT, WEST ALONG
AG7631'AIRPORT ROAD FOR 0.48 KM (0.30 MI) TO DANTES RESTAURANT ON THE LEFT
AG7631'AND THE AIRPORT MANAGERS OFFICE, THEN CONTINUE WEST ALONG AIRPORT
AG7631'AVE. E AND BEACH ROAD FOR 0.96 KM (0.60 MI) TO THE JUNCTION OF HARBOR
AG7631'DRIVE, THEN GO LEFT, SOUTH ALONG HARBOR DRIVE FOR 0.16 KM (0.10 MI) TO
AG7631'THE ENTRANCE TO THE OLD COAST GUARD STATION ON THE RIGHT, THEN GO
AG7631'RIGHT, WEST ALONG AN ASPHALT ROAD FOR 0.08 KM (0.05 MI) TO THE STATION
AG7631'ON THE RIGHT, IN AN OPEN GRASSY AREA.
AG7631'THE STATION IS RECESSED 13 CM BELOW GROUND.  LOCATED 47.6 M
AG7631'(156.2 FT) NORTHEAST OF A FLAGPOLE, 6.2 M (20.3 FT) NORTHEAST OF THE
AG7631'NORTHEAST EDGE OF A 10 FT BY 20 FT CONCRETE PAD, 47 M (154.2 FT) EAST
AG7631'OF THE SOUTHEAST CORNER OF A WHITE BLOCK OFFICE BUILDING, 30 M
AG7631'(98.4 FT) NORTH OF THE APPROXIMATE CENTER OF AN ASPHALT ROAD, 0.09 M
AG7631'(0.3 FT) EAST OF A METAL WITNESS POST AND LEVEL WITH THE ASPHALT ROAD.
AG7631'DESCRIBED BY G.F. SMITH.
AG7631
AG7631                          STATION RECOVERY (1990)
AG7631
AG7631'RECOVERY NOTE BY FL DEPT OF NAT RES 1990
AG7631'RECOVERED IN GOOD CONDITION.
AG7631
AG7631                          STATION RECOVERY (1992)
AG7631
AG7631'RECOVERY NOTE BY SARASOTA COUNTY FLORIDA 1992
AG7631'TO REACH THE STATION FROM THE INTERSECTION OF BEACH ROAD AND HARBOR
AG7631'DRIVE IN THE CITY OF VENICE IN SARASOTA COUNTY, GO SOUTHERLY ON
AG7631'HARBOR DRIVE 650 FT (198.12 M) TO THE INTERSECTION OF HARBOR DRIVE
AG7631'AND THE ENTRANCE TO THE FORMER LORAN COAST GUARD STATION, TURN
AG7631'RIGHT AND GO SOUTHWEST ON THE ENTRANCE ROAD, 250 FT (76.20 M) TO THE
AG7631'STATION ON THE RIGHT. THE STATION IS A U.S. COAST AND GEODETIC SURVEY
AG7631'(C.G.S.) TRAVERSE STATION DISK STAMPED ---LORAN 1954--- SET IN A
AG7631'10-INCH SQUARE CONCRETE MONUMENT THAT IS 5-INCHES BELOW THE GROUND.
AG7631'IT IS 77.40 FT (23.59 M) SOUTHWESTERLY OF A NATIONAL OCEANIC SURVEY
AG7631'(N.O.S.) CONCRETE MONUMENT I WSA NO 1 1950, AND 20.25 FT (6.17 M)
AG7631'NORTHEASTERLY OF THE NORTHEASTERLY CORNER OF A CONCRETE SLAB.
AG7631'THE NATIONAL OCEANIC SURVEY (N.O.S.) CONCRETE MONUMENT STAMPED ---I
AG7631'WSA NO 1 1950--- IS 65.0 FT (19.81 M) NORTHWESTERLY OF THE CENTERLINE
AG7631'OF THE ENTRANCE OF THE FORMER LORAN COAST GUARD STATION, 180.36 FT
AG7631'(54.97 M) SOUTHWESTERLY OF A N.O.S. DISK 5858 C 1977, 190.20 FT
AG7631'(57.97 M) NORTHEASTERLY OF A N.O.S. DISK 5858 C 1977 SET IN A
AG7631'CONCRETE SLAB FOR A FLAG POLE, AND 87.18 FT (26.57 M) SOUTHEASTERLY
AG7631'OF THE SOUTHEASTERLY CORNER OF A CONCRETE SLAB.
AG7631
AG7631                          STATION RECOVERY (2002)
AG7631
AG7631'RECOVERY NOTE BY US POWER SQUADRON 2002
AG7631'RECOVERED IN GOOD CONDITION.

*** retrieval complete.
```

```
Elapsed Time = 00:00:00
```

The NGS Data Sheet

See file dsdata.txt for more information about the datasheet.

```
DATABASE =  ,PROGRAM = datasheet, VERSION = 7.61
1        National Geodetic Survey,   Retrieval Date = SEPTEMBER 16, 2008
 AG1968 ***********************************************************************
 AG1968  CBN         -  This is a Cooperative Base Network Control Station.
 AG1968  DESIGNATION -  VERNA
 AG1968  PID         -  AG1968
 AG1968  STATE/COUNTY-  FL/SARASOTA
 AG1968  USGS QUAD   -  OLD MYAKKA (1987)
 AG1968
 AG1968                        *CURRENT SURVEY CONTROL
 AG1968  ______________________________________________________________________
 AG1968* NAD 83(2007)-  27 21 55.10823(N)    082 16 05.66402(W)     ADJUSTED
 AG1968* NAVD 88     -        27.244  (meters)      89.38   (feet)  ADJUSTED
 AG1968  ______________________________________________________________________
 AG1968  EPOCH DATE  -        2002.00
 AG1968  X           -     762,600.531 (meters)                     COMP
 AG1968  Y           -  -5,616,864.351 (meters)                     COMP
 AG1968  Z           -   2,914,224.548 (meters)                     COMP
 AG1968  LAPLACE CORR-          -0.59  (seconds)                    DEFLEC99
 AG1968  ELLIP HEIGHT-           2.694 (meters)          (02/10/07) ADJUSTED
 AG1968  GEOID HEIGHT-         -24.56  (meters)                     GEOID03
 AG1968  DYNAMIC HT  -          27.203 (meters)      89.25  (feet)  COMP
 AG1968
 AG1968  ------- Accuracy Estimates (at 95% Confidence Level in cm) --------
 AG1968  Type    PID    Designation                       North   East  Ellip
 AG1968  ----------------------------------------------------------------------
 AG1968  NETWORK AG1968 VERNA                              2.78   2.86   7.66
 AG1968  ----------------------------------------------------------------------
 AG1968  MODELED GRAV-     979,125.8   (mgal)                     NAVD 88
 AG1968
 AG1968  VERT ORDER  -  SECOND    CLASS I
 AG1968
 AG1968.The horizontal coordinates were established by GPS observations
 AG1968.and adjusted by the National Geodetic Survey in February 2007.
 AG1968
 AG1968.The datum tag of NAD 83(2007) is equivalent to NAD 83(NSRS2007).
 AG1968.See National Readjustment for more information.
 AG1968.The horizontal coordinates are valid at the epoch date displayed above.
 AG1968.The epoch date for horizontal control is a decimal equivalence
 AG1968.of Year/Month/Day.
 AG1968
 AG1968.The orthometric height was determined by differential leveling
 AG1968.and adjusted in May 2008.
 AG1968
 AG1968.The X, Y, and Z were computed from the position and the ellipsoidal ht.
 AG1968
 AG1968.The Laplace correction was computed from DEFLEC99 derived deflections.
 AG1968
 AG1968.The ellipsoidal height was determined by GPS observations
 AG1968.and is referenced to NAD 83.
 AG1968
```

```
 AG1968.The geoid height was determined by GEOID03.
 AG1968
 AG1968.The dynamic height is computed by dividing the NAVD 88
 AG1968.geopotential number by the normal gravity value computed on the
 AG1968.Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
 AG1968.degrees latitude (g = 980.6199 gals.).
 AG1968
 AG1968.The modeled gravity was interpolated from observed gravity values.
 AG1968
 AG1968;                    North         East     Units Scale Factor Converg.
 AG1968;SPC FL W     -   335,908.671   173,463.944   MT  0.99994987   -0 07
23.9
 AG1968;SPC FL W     - 1,102,060.36    569,106.29   sFT  0.99994987   -0 07
23.9
 AG1968;UTM  17      - 3,027,535.644   374,574.521   MT  0.99979419   -0 34
58.9
 AG1968
 AG1968!             -  Elev Factor  x  Scale Factor =   Combined Factor
 AG1968!SPC FL W     -   0.99999958  x   0.99994987  =   0.99994945
 AG1968!UTM  17      -   0.99999958  x   0.99979419  =   0.99979377
 AG1968
 AG1968|-------------------------------------------------------------------|
 AG1968| PID    Reference Object                    Distance      Geod. Az  |
 AG1968|                                                          dddmmss.s |
 AG1968| AG1967 VERNA RM 1                          52.370 METERS 10742     |
 AG1968| AG1966 VERNA RM 2                          53.730 METERS 35417     |
 AG1968| AG1519 VERNA 1934 AZ MK 1944              APPROX. 0.7 KM 3582030.9 |
 AG1968|-------------------------------------------------------------------|
 AG1968
 AG1968                          SUPERSEDED SURVEY CONTROL
 AG1968
 AG1968  NAD 83(1999)-  27 21 55.10750(N)    082 16 05.66506(W) AD(       ) B
 AG1968  ELLIP H (05/31/01)    2.681  (m)                       GP(       ) 5 1
 AG1968  NAD 83(1990)-  27 21 55.10606(N)    082 16 05.66443(W) AD(       ) B
 AG1968  ELLIP H (09/13/90)    2.790  (m)                       GP(       ) 4 1
 AG1968  NAD 83(1986)-  27 21 55.10549(N)    082 16 05.67220(W) AD(       ) 1
 AG1968  NAD 27      -  27 21 53.94371(N)    082 16 06.34607(W) AD(       ) 1
 AG1968  NAVD 88 (06/15/91)   27.308  (m)           89.59   (f) UNKNOWN     2 0
 AG1968  NGVD 29 (??/??/92)   27.594  (m)           90.53   (f) ADJ UNCH    2 0
 AG1968
 AG1968.Superseded values are not recommended for survey control.
 AG1968.NGS no longer adjusts projects to the NAD 27 or NGVD 29 datums.
 AG1968.See file dsdata.txt to determine how the superseded data were derived.
 AG1968
 AG1968_U.S. NATIONAL GRID SPATIAL ADDRESS: 17RLL7457527536(NAD 83)
 AG1968_MARKER: DS = TRIANGULATION STATION DISK
 AG1968_SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
 AG1968_SP_SET: CONCRETE POST
 AG1968_STAMPING: VERNA 1934
 AG1968_MARK LOGO: CGS
 AG1968_PROJECTION: FLUSH
 AG1968_MAGNETIC: M = MARKER EQUIPPED WITH BAR MAGNET
 AG1968_STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
 AG1968+STABILITY: SURFACE MOTION
 AG1968_SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
 AG1968+SATELLITE: SATELLITE OBSERVATIONS - March 31, 2006
 AG1968
```

```
AG1968  HISTORY     - Date     Condition        Report By
AG1968  HISTORY     - 1934     MONUMENTED       CGS
AG1968  HISTORY     - 1943     GOOD             CGS
AG1968  HISTORY     - 1948     GOOD             FLDT
AG1968  HISTORY     - 1952     GOOD             USGS
AG1968  HISTORY     - 1963     GOOD             NGS
AG1968  HISTORY     - 1977     GOOD             LOCSUR
AG1968  HISTORY     - 19870625 GOOD
AG1968  HISTORY     - 19890407 GOOD             NGS
AG1968  HISTORY     - 19920930 GOOD             FL-115
AG1968  HISTORY     - 20060331 SEE DESCRIPTION  FLDEP
AG1968
AG1968                          STATION DESCRIPTION
AG1968
AG1968'DESCRIBED BY COAST AND GEODETIC SURVEY 1934 (JB)
AG1968'THE STATION IS LOCATED ON THE EAST SIDE OF A MACADAM ROAD IN
AG1968'A FIELD OF SMALL PALMETTOES APPROXIMATELY 0.3 MILE SOUTH OF A
AG1968'CATTLE GAP IN THE HIGHWAY, 16 PACES EAST OF THE CENTER LINE OF
AG1968'THE HIGHWAY, 15 PACES NORTHEAST OF THE INTERSECTION OF A
AG1968'DRAINAGE DITCH WITH A HIGHWAY DITCH, AND 12 PACES NORTH-NORTHEAST
AG1968'OF A 12-INCH PINE TREE WITH A TRIANGULAR BLAZE.  THE
AG1968'MARK PROJECTS 6 INCHES ABOVE GROUND AND IS STAMPED VERNA 1934.
AG1968'
AG1968'TO REACH THE STATION FROM MYAKKA CITY POST OFFICE FOLLOW
AG1968'STATE HIGHWAY 18A WEST FOR 7.1 MILES TO A GROUP OF UNPAINTED
AG1968'BUILDINGS AND A T-ROAD SOUTH (VERNA), TURN SOUTH ON A
AG1968'MACADAM ROAD FOR 1.1 MILES TO A CATTLE GAP IN THE HIGHWAY,
AG1968'AND CONTINUE AHEAD FOR ABOUT 0.3 MILE TO THE STATION.
AG1968'
AG1968'SURFACE, UNDERGROUND, REFERENCE AND AZIMUTH MARKS ARE
AG1968'STANDARD BRONZE DISKS SET IN CONCRETE.
AG1968'
AG1968'REFERENCE MARK NO.1 IS 52.37 METERS SOUTHEAST OF THE STATION,
AG1968'37 PACES SOUTH OF AN 18-INCH PINE TREE WITH A ROSIN BLAZE,
AG1968'AND 32 PACES WEST-NORTHWEST OF A LONE 6-INCH PINE TREE.  THE
AG1968'MARK PROJECTS 6 INCHES AND IS STAMPED VERNA NO 1 1934.
AG1968'
AG1968'REFERENCE MARK NO.2 IS 53.73 METERS NORTH-NORTHWEST OF THE
AG1968'STATION, 10 PACES EAST OF THE CENTER LINE OF THE HIGHWAY, AND
AG1968'2 PACES SOUTH OF A LONE 12-INCH PINE TREE.  THE MARK PROJECTS 6
AG1968'INCHES AND IS STAMPED VERNA NO 2 1934.
AG1968'
AG1968'AZIMUTH MARK IS APPROXIMATELY 0.3 MILE NORTH OF THE STATION,
AG1968'15 PACES SOUTHWEST OF A CATTLE GAP IN THE HIGHWAY, 9 PACES
AG1968'WEST OF THE CENTER LINE OF THE HIGHWAY, 2 PACES SOUTH OF A
AG1968'WOODEN GATE, AND IN A FENCE LINE.  THE MARK PROJECTS 6 INCHES
AG1968'AND IS STAMPED VERNA AZ MK 1934.
AG1968'
AG1968'A 103-FOOT TOWER WILL CLEAR ALL LINES OBSERVED.
AG1968
AG1968                          STATION RECOVERY (1943)
AG1968
AG1968'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1943 (RLS)
AG1968'RECOVERED AS DESCRIBED, EXCEPT FOR THE FOLLOWING DISCREPANCIES--
AG1968'
AG1968'1.  THE STATION PROJECTS 3 INCHES ABOVE GROUND, NOT 6 INCHES
AG1968'ABOVE GROUND.
```

```
AG1968'
AG1968'2.  REFERENCE MARK 1 PROJECTS 3 INCHES ABOVE GROUND, NOT 6
AG1968'INCHES ABOVE GROUND.
AG1968'
AG1968'3.  REFERENCE MARK 2 PROJECTS 3 INCHES ABOVE GROUND, NOT 6
AG1968'INCHES ABOVE GROUND.
AG1968'
AG1968'4.  AZIMUTH MARK PROJECTS 3 INCHES, NOT 6 INCHES.
AG1968'
AG1968'5.  AZIMUTH MARK IS 0.4 MILE N OF STATION, NOT 0.3 MILE.
AG1968
AG1968                          STATION RECOVERY (1948)
AG1968
AG1968'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 1948 (WMP)
AG1968'LETTER OF W.M. PARKER, DIV.ENGR., STATE ROAD DEPT. OF FLORIDA,
AG1968'TALLAHASSEE, DATED 11/5/48--
AG1968'
AG1968'THIS MONUMENT AND R.M.S 1 AND 2 WERE RECOVERED AND FOUND TO
AG1968'BE IN GOOD CONDITION.
AG1968'
AG1968'THE CATTLE GAP REFERRED TO IN THE 1934 DESCRIPTION HAS BEEN
AG1968'REMOVED.  THE DISTANCE IN THE DESCRIPTION SHOULD READ
AG1968'APPROXIMATELY 0.4 MILE S OF BREAK IN ROAD SURFACE MARKING
AG1968'OLD CATTLE GAP.  DISTANCE FROM T-ROAD (STATE HIGHWAY 70)
AG1968'AT VERNA IS APPROXIMATELY 1.51 MI. S.  THE TREES REFERRED TO
AG1968'IN THE DESCRIPTION WERE NOT FOUND.  NO ATTEMPT WAS MADE TO
AG1968'RECOVER THE AZIMUTH MARK.
AG1968
AG1968                          STATION RECOVERY (1952)
AG1968
AG1968'RECOVERY NOTE BY US GEOLOGICAL SURVEY 1952
AG1968'STATION RECOVERED IN GOOD CONDITION.
AG1968
AG1968                          STATION RECOVERY (1963)
AG1968
AG1968'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1963
AG1968'8.5 MI W FROM MYAKKA CITY.
AG1968'LOCATED ABOUT 7.0 MILES NORTHWEST ALONG STATE ROAD 70 FROM THE
AG1968'CENTER OF MYAKKA CITY, THENCE SOUTH 1.5 MILE ALONG VERNA ROAD,
AG1968'49 FEET EAST OF THE CENTER OF THE ROAD, 150 FEET NORTH OF A
AG1968'POWER POLE, ABOUT 125 FEET NORTHEAST OF THREE PINE TREES WITH
AG1968'TRIANGULAR BLAZES ON THE WEST SIDE OF THE ROAD AND 2 FEET EAST
AG1968'OF A WITNESS SIGN.  SET IN THE TOP OF A 12-INCH SQUARE CONCRETE
AG1968'MONUMENT PROJECTING 2 INCHES.
AG1968
AG1968                          STATION RECOVERY (1977)
AG1968
AG1968'RECOVERY NOTE BY LOCAL SURVEYOR (INDIVIDUAL OR FIRM) 1977
AG1968'50 FT. EAST OF CENTERLINE OF VERNA ROAD. NO CATTLE GAP.
AG1968
AG1968                          STATION RECOVERY (1987)
AG1968
AG1968'RECOVERED 1987
AG1968'RECOVERED IN GOOD CONDITION.
AG1968
AG1968                          STATION RECOVERY (1989)
AG1968
```

```
AG1968'RECOVERY NOTE BY NATIONAL GEODETIC SURVEY 1989
AG1968'THE STATION WAS RECOVERED IN FAIR CONDITION.  THE SOUTH SIDE OF
AG1968'CONCRETE POST IS CHIPPED.   THE SOUTH EDGE OF DISK IS DAMAGED.
AG1968'THE STATION IS LOCATED ABOUT 32.67 KM (20.30 MI) NORTHEAST OF VENICE,
AG1968'20.12 KM (12.50 MI) EAST-NORTHEAST OF SARASOTA, 10.14 KM (6.30 MI)
AG1968'WEST OF MYAKKA CITY, IN THE WEST CENTRAL PART OF SECTION 12, T 36 S, R
AG1968'20 E, IN A SMALL CLUMP OF PALMETTO.  OWNERSHIP--CITY OF SARASOTA WATER
AG1968'DEPARTMENT, 1750 12TH ST, SARASOTA FL 34236, GENE GAINEY, PHONE
AG1968'813-322-2370.
AG1968'TO REACH THE STATION FROM THE INTERSECTION OF INTERSTATE HIGHWAY 75
AG1968'AND STATE ROAD 780, ABOUT 8.05 KM (5.00 MI) EAST OF SARASOTA, GO EAST
AG1968'FOR 17.62 KM (10.95 MI) ON STATE ROAD 780 TO A T-JUNCTION.  TURN LEFT
AG1968'AND GO NORTH FOR 1.85 KM (1.15 MI) ON VERNA ROAD TO A PAVED ROAD
AG1968'RIGHT, SINGLETARY ROAD.  CONTINUE STRAIGHT AHEAD AND GO NORTH FOR 1.58
AG1968'KM (1.00 MI) ON VERNA ROAD TO A DIRT ROAD RIGHT.  CONTINUE STRAIGHT
AG1968'AHEAD AND GO NORTH FOR ABOUT 100 M (328.1 FT) ON VERNA ROAD TO THE
AG1968'STATION ON RIGHT.
AG1968'THE STATION PROJECTS 7 CM ABOVE GROUND.  LOCATED 91.59 M (300.5 FT)
AG1968'NORTH FROM A BARBED WIRE FENCE LINE, 47.15 M (154.7 FT)
AG1968'NORTH-NORTHEAST FROM THE FIRST UTILITY POLE THAT IS NORTH FROM A
AG1968'JUNCTION UTILITY POLE, 15.48 M (50.8 FT) EAST FROM THE APPROXIMATE
AG1968'CENTER OF VERNA ROAD, 3.93 M (12.9 FT) EAST FROM A CARSONITE WITNESS
AG1968'POST IN BARBED WIRE FENCE LINE AND 0.37 M (1.2 FT) WEST FROM A METAL
AG1968'WITNESS POST.
AG1968'DESCRIBED BY D.F. CALLAHAN.
AG1968
AG1968                          STATION RECOVERY (1992)
AG1968
AG1968'RECOVERY NOTE BY SARASOTA COUNTY FLORIDA 1992
AG1968'TO REACH THE STATION FROM THE INTERSECTION OF STATE ROAD 780
AG1968'(FRUITVILLE ROAD) AND VERNA ROAD IN SARASOTA COUNTY, GO NORTH ON
AG1968'VERNA ROAD, 2.1 MI (3.38 KM) TO THE STATION ON THE RIGHT.
AG1968'THE STATION IS A U. S. COAST AND GEODETIC SURVEY (C.G.S.)
AG1968'TRIANGULATION STATION DISK STAMPED ---VERNA 1934--- SET IN A 12-INCH
AG1968'ROUND CONCRETE MONUMENT THAT IS 6-INCHES BELOW THE GROUND. IT IS 50.7
AG1968'FT (15.45 M) EASTERLY OF THE CENTERLINE OF VERNA ROAD, AND 1.3 FT
AG1968'(0.40 M) WESTERLY OF A SURVEY MARKER WITNESS POST.
AG1968'REFERENCES--
AG1968'REFERENCE MARK NUMBER 1 IS STANDARD SARASOTA COUNTY (SARCO) REFERENCE
AG1968'TAG AND P.K. NAIL SET IN THE EASTERLY EDGE OF ASPHALT PAVEMENT ROAD
AG1968'BED FOR VERNA ROAD. IT IS 45.87 FT (13.98 M) SOUTHWESTERLY OF C.G.S.
AG1968'VERNA, AND 48.32 FT (14.73 M) SOUTHERLY OF SARCO REFERENCE NO. 2.
AG1968'REFERENCE MARK NUMBER 2 IS A STANDARD SARASOTA COUNTY (SARCO)REFERENCE
AG1968'TAG AND P.K. NAIL SET IN THE EASTERLY EDGE OF ASPHALT PAVEMENT ROAD
AG1968'BED FOR VERNA ROAD. IT IS 46.16 FT (14.07 M) NORTHWESTERLY OF C.G.S.
AG1968'VERNA, AND 48.32 FT (14.73 M) NORTHERLY OF SARCO REFERENCE NO. 1.
AG1968
AG1968                          STATION RECOVERY (2006)
AG1968
AG1968'RECOVERY NOTE BY FL DEPT OF ENV PRO 2006 (BPJ)
AG1968'RECOVERED IN POOR CONDITION WITH A NEW TO REACH AS FOLLOWS,
AG1968'
AG1968'TO REACH THE MARK FROM  THE POST OFFICE IN MYAKKA CITY, GO WEST ON
AG1968'STATE ROAD 70 FOR 7.1 MI TO THE JUNCTION OF  VERNA ROAD ON THE LEFT,
AG1968'TURN LEFT ON VERNA ROAD AND GO SOUTH FOR 1.5 MI TO THE MARK ON  THE
AG1968'LEFT, SET IN THE TOP OF A CONCRETE MONUMENT FLUSH WITH THE GROUND AND
AG1968'ABOUT 1.0 FT  BELOW THE LEVEL OF VERNA ROAD.
```

```
AG1968'
AG1968'NOTE THE DISC WAS FOUND CHIPPED ON THE EDGE BUT OK TO LEVEL TO.

*** retrieval complete.
Elapsed Time = 00:00:01
```

APPENDIX B: FINAL LiDAR QA/QC CHECKPOINTS, LiDAR CONTROL POINTS AND GEODETIC CONTROL COORDINATE LISTING

This appendix contains the final coordinate listings for the LiDAR QA/QC Checkpoints, LiDAR Control Points and the geodetic control stations utilized in the Sarasota County Buy-Up Area of the FY2007 State of Florida Division of Emergency Management Ground Control QA/QC Survey Mapping Project.

HORIZONTAL DATUM: NAD83 (1999)
VERTICAL DATUM: NAVD 88
UNITS: US SURVEY FEET
STATE PLANE ZONE: FLORIDA WEST (0902)
GEOID MODEL: GEOID 03
COORDINATE SYSTEM: GRID
DATE: 11-20-07

STATIONS IN BLUE = CONVENTIONAL METHODS
STATIONS IN RED = RAPID STATIC METHODS

LiDAR QA/QC CHECKPOINTS AND LiDAR CONTROL POINTS:

STATION NAME	GRID NORTHING (US FT)	GRID EASTING (US FT)	ELEVATION (US FT)	CLASSIFICATION
9000	1106802.55	521115.45	28.17	LOW GRASS OR BARE EARTH
9001	1103325.17	525312.84	41.41	BRUSH
9002	1104318.64	515978.61	29.99	URBAN
9003	1106801.17	520070.50	28.45	URBAN
9004	1107621.13	521040.06	26.87	FORESTED
9005	1078200.65	528631.06	27.23	BRUSH
9006	1080817.47	527398.84	26.54	URBAN
9007	1083006.70	528670.24	26.44	LOW GRASS OR BARE EARTH
9008	1084608.14	525956.47	31.18	URBAN
9009	1096447.66	540728.50	41.91	FORESTED
9010	1092361.91	541118.93	37.94	BRUSH
9011	1095740.33	543227.84	43.92	URBAN
9012	1095281.66	547173.25	47.18	URBAN
9013	1092267.70	543324.55	41.52	LOW GRASS OR BARE EARTH
9014	1103434.93	569102.21	91.57	FORESTED
9015	1083131.65	565106.41	48.09	LOW GRASS OR BARE EARTH
9016	1078822.68	569352.52	26.78	URBAN
9017	1085727.92	572816.43	38.93	BRUSH
9018	1084606.15	569006.57	51.09	URBAN
9019	1076994.44	526110.66	31.14	FORESTED
9020	1106425.67	569126.18	94.19	BRUSH
9021	1100962.47	570346.39	81.50	URBAN
9022	1099053.98	565354.35	71.81	LOW GRASS OR BARE EARTH
9023	1101726.89	569070.36	88.51	URBAN
9024	1086939.83	560183.67	44.40	FORESTED
9025	1064550.56	562818.87	16.59	URBAN
9027	1059227.93	559982.31	14.28	BRUSH
9029	1046732.15	570621.91	31.45	FORESTED
9031	1047050.38	570097.44	31.47	LOW GRASS OR BARE EARTH
9032	1044982.95	573818.64	31.41	BRUSH

9034	1058696.14	540359.19	27.43	FORESTED
9036	1039460.93	607628.08	32.29	LOW GRASS OR BARE EARTH
9037	1039556.15	604033.57	35.55	BRUSH
9038	1039599.65	600422.02	34.85	LIDAR CONTROL POINT
9039	1039489.20	613057.15	34.88	BRUSH
9040	1039573.07	616401.88	39.54	URBAN
9041	1039968.02	628281.77	41.25	LOW GRASS OR BARE EARTH
9042	1041145.10	630614.14	40.19	BRUSH
9043	1042768.89	616442.54	43.49	LIDAR CONTROL POINT
9044	1011826.59	573573.91	21.82	FORESTED
9049	1046817.51	570467.81	31.04	FORESTED
9051	1013442.47	573622.69	23.21	LOW GRASS OR BARE EARTH
9052	1010448.88	574824.69	21.82	BRUSH
9053	1013398.88	576191.30	23.75	LIDAR CONTROL POINT
9054	1039470.53	594543.47	31.91	FORESTED
9056	1013348.66	584185.73	24.88	LOW GRASS OR BARE EARTH
9057	1010681.26	584698.91	27.94	BRUSH
9059	1011968.10	573577.28	23.70	FORESTED
9061	1003306.04	603790.87	23.75	LOW GRASS OR BARE EARTH
9062	1002854.86	604615.06	24.49	BRUSH
9064	1039578.72	620852.26	39.07	FORESTED
9068	990198.15	628204.50	22.33	LIDAR CONTROL POINT
9069	1013244.38	585659.82	26.93	FORESTED
9072	1065039.72	520561.00	35.62	BRUSH
9073	1065026.46	520470.39	34.66	LIDAR CONTROL POINT
9074	1013243.56	585768.88	27.21	FORESTED
9075	1067656.54	528136.24	30.59	URBAN
9076	1069681.98	528342.73	32.07	LOW GRASS OR BARE EARTH
9077	1072713.25	527041.42	34.89	BRUSH
9078	1067590.44	528654.21	32.18	LIDAR CONTROL POINT
9080	1060114.55	540993.72	29.99	URBAN
9081	1058220.67	544691.50	30.08	LOW GRASS OR BARE EARTH
9082	1058184.44	542652.15	28.07	BRUSH
9083	1058839.09	540733.25	29.21	LIDAR CONTROL POINT
9084	996260.02	605647.56	22.90	FORESTED
9085	1058942.08	536927.51	29.99	URBAN
9086	1058388.96	535079.28	27.79	LOW GRASS OR BARE EARTH
9087	1060953.51	535217.58	25.78	BRUSH
9088	1059544.61	537286.30	30.32	LIDAR CONTROL POINT
9090	1107482.92	521121.19	29.26	LIDAR CONTROL POINT
9091	1107649.80	521110.12	29.39	URBAN
9092	1086969.10	560047.78	50.82	URBAN
9093	1086844.00	559959.73	50.99	LIDAR CONTROL POINT
9094	1103415.44	569087.05	91.88	TRAVERSE POINT
9095	1103499.58	569086.52	91.99	TRAVERSE POINT
9096	1096385.60	540700.31	44.28	TRAVERSE POINT
9097	1096391.39	540612.66	44.53	TRAVERSE POINT
9098	1077068.02	526176.99	32.21	TRAVERSE POINT
9099	1077197.63	526178.64	31.92	TRAVERSE POINT

9100	1067183.80	519628.29	35.43	TRAVERSE POINT
9101	1067178.80	519755.00	36.14	TRAVERSE POINT
9102	1058765.83	540386.08	28.82	TRAVERSE POINT
9103	1058742.94	540487.66	29.11	TRAVERSE POINT
9104	1046765.93	570651.24	32.43	TRAVERSE POINT
9105	1046852.70	570486.77	32.46	TRAVERSE POINT
9106	1039571.98	594534.11	33.21	TRAVERSE POINT
9107	1039570.50	594664.01	33.60	TRAVERSE POINT
9108	1011959.60	573524.16	22.54	TRAVERSE POINT
9109	1011870.09	573523.33	22.74	TRAVERSE POINT
9110	1013326.26	585694.74	24.76	TRAVERSE POINT
9111	1013327.24	585589.22	24.82	TRAVERSE POINT
9112	996257.82	605566.10	26.73	TRAVERSE POINT
9113	996406.68	605567.19	27.07	TRAVERSE POINT
9114	993291.99	629885.76	24.66	TRAVERSE POINT
9115	993158.52	629885.82	24.62	TRAVERSE POINT
9116	1039523.21	620784.58	40.98	TRAVERSE POINT
9117	1039521.43	620676.14	40.93	TRAVERSE POINT
9026A	1060319.79	561170.01	16.90	LOW GRASS OR BARE EARTH
9028A	1058579.98	556448.81	18.53	LIDAR CONTROL POINT
9031A	1044460.55	574970.69	32.26	LOW GRASS OR BARE EARTH
9031B	1041731.46	578596.47	32.81	LOW GRASS OR BARE EARTH
9050A	1013409.15	574884.80	23.22	URBAN
9055A	1009478.09	584778.16	23.42	URBAN
9058A	1010112.01	585644.13	26.42	LIDAR CONTROL POINT
9060A	1001403.39	604247.73	23.13	URBAN
9063A	1000997.38	602126.97	22.72	LIDAR CONTROL POINT

EXISTING NGS CONTROL STATIONS:

STATION NAME	GRID NORTHING (US FT)	GRID EASTING (US FT)	ELEVATION (US FT)	CLASSIFICATION
I75 83 A01	990866.02	628599.81	45.34	NGS CONTROL STATION
I75 83 A34	1025323.51	518684.35	29.35	NGS CONTROL STATION
I75 83 A44	1067231.79	510319.66	55.98	NGS CONTROL STATION
LORAN	997598.09	509593.58	12.05	NGS CONTROL STATION
VERNA	1102060.29	569106.20	89.59	NGS CONTROL STATION

APPENDIX C: POSITIONAL ACCURACIES

This appendix contains the final positional accuracies for the LiDAR QA/QC Checkpoints (except the forest points and one brush point) and the LiDAR Control Points for the Sarasota County Buy-Up Area of the FY2007 State of Florida Division of Emergency Management Ground Control QA/QC Survey Mapping Project.

LiDAR QA/QC POINTS (NO FOREST POINTS)

CALCULATED ACCURACIES:

0.01	Meters RMSEx
0.01	Meters RMSEy
0.01	Meters RMSExy
0.03	Meters at 95% C.I.
0.04	RMSEz
0.09	Meters at 95% C.I.

CALCULATED ACCURACIES:

0.03	Feet RMSEx
0.03	Feet RMSEy
0.05	Feet RMSExy
0.08	Feet at 95% C.I.
0.15	RMSEz
0.29	Feet at 95% C.I.

METERS

STATION	Vx	Vy	Vxy	Vz
9000	0.011	0.009	0.01	0.051
9001	0.007	0.009	0.01	0.045
9002	0.008	0.008	0.01	0.046
9003	0.007	0.008	0.01	0.048
9005	0.009	0.011	0.01	0.046
9006	0.007	0.009	0.01	0.042
9007	0.010	0.010	0.01	0.046
9008	0.013	0.009	0.02	0.049
9010	0.015	0.011	0.02	0.053
9011	0.010	0.008	0.01	0.048
9012	0.007	0.008	0.01	0.044
9013	0.007	0.009	0.01	0.042
9015	0.008	0.009	0.01	0.042
9016	0.008	0.008	0.01	0.044
9017	0.008	0.010	0.01	0.046
9018	0.010	0.012	0.02	0.047
9020	0.009	0.008	0.01	0.048
9021	0.009	0.007	0.01	0.045
9022	0.007	0.007	0.01	0.042
9023	0.007	0.007	0.01	0.044
9025	0.055	0.044	0.07	0.135
9027	0.010	0.011	0.01	0.048
9031	0.012	0.010	0.02	0.044
9032	0.007	0.008	0.01	0.038
9036	0.008	0.009	0.01	0.046
9037	0.008	0.010	0.01	0.042
9040	0.009	0.007	0.01	0.047
9041	0.009	0.011	0.01	0.051
9042	0.010	0.012	0.02	0.050

US FEET

STATION	Vx	Vy	Vxy	Vz
9000	0.04	0.03	0.05	0.17
9001	0.02	0.03	0.04	0.15
9002	0.03	0.03	0.04	0.15
9003	0.02	0.03	0.03	0.16
9005	0.03	0.04	0.05	0.15
9006	0.02	0.03	0.04	0.14
9007	0.03	0.03	0.05	0.15
9008	0.04	0.03	0.05	0.16
9010	0.05	0.04	0.06	0.17
9011	0.03	0.03	0.04	0.16
9012	0.02	0.03	0.03	0.14
9013	0.02	0.03	0.04	0.14
9015	0.03	0.03	0.04	0.14
9016	0.03	0.03	0.04	0.14
9017	0.03	0.03	0.04	0.15
9018	0.03	0.04	0.05	0.15
9020	0.03	0.03	0.04	0.16
9021	0.03	0.02	0.04	0.15
9022	0.02	0.02	0.03	0.14
9023	0.02	0.02	0.03	0.14
9025	0.18	0.14	0.23	0.44
9027	0.03	0.04	0.05	0.16
9031	0.04	0.03	0.05	0.14
9032	0.02	0.03	0.03	0.12
9036	0.03	0.03	0.04	0.15
9037	0.03	0.03	0.04	0.14
9040	0.03	0.02	0.04	0.15
9041	0.03	0.04	0.05	0.17
9042	0.03	0.04	0.05	0.16

STATION	Vx	Vy	Vxy	Vz
9051	0.010	0.008	0.01	0.044
9052	0.008	0.011	0.01	0.042
9056	0.008	0.010	0.01	0.041
9057	0.008	0.008	0.01	0.041
9061	0.014	0.012	0.02	0.051
9062	0.011	0.007	0.01	0.045
9072	0.007	0.008	0.01	0.039
9075	0.012	0.013	0.02	0.043
9076	0.009	0.012	0.02	0.046
9077	0.008	0.009	0.01	0.046
9080	0.007	0.009	0.01	0.039
9081	0.014	0.011	0.02	0.054
9082	0.007	0.008	0.01	0.040
9085	0.011	0.015	0.02	0.047
9086	0.010	0.013	0.02	0.051
9087	0.011	0.012	0.02	0.046
9091	0.007	0.008	0.01	0.040
9092	0.007	0.007	0.01	0.037
9094	0.006	0.006	0.01	0.038
9095	0.006	0.006	0.01	0.038
9096	0.007	0.008	0.01	0.038
9097	0.007	0.009	0.01	0.038
9098	0.006	0.007	0.01	0.033
9099	0.006	0.007	0.01	0.033
9100	0.008	0.006	0.01	0.037
9101	0.008	0.007	0.01	0.036
9102	0.007	0.007	0.01	0.034
9103	0.006	0.007	0.01	0.034
9104	0.006	0.008	0.01	0.032
9105	0.007	0.008	0.01	0.032
9106	0.008	0.008	0.01	0.033
9107	0.008	0.008	0.01	0.033
9108	0.011	0.013	0.02	0.041
9109	0.009	0.011	0.01	0.041
9110	0.010	0.008	0.01	0.042
9111	0.010	0.008	0.01	0.042
9112	0.007	0.007	0.01	0.036
9113	0.006	0.006	0.01	0.036
9114	0.005	0.005	0.01	0.039
9115	0.005	0.005	0.01	0.039
9116	0.005	0.005	0.01	0.036
9117	0.005	0.005	0.01	0.036
9026A	0.007	0.008	0.01	0.039
9031A	0.007	0.007	0.01	0.038
9031B	0.010	0.010	0.01	0.047
9050A	0.010	0.008	0.01	0.043
9055A	0.008	0.008	0.01	0.044
9060A	0.010	0.014	0.02	0.046

STATION	Vx	Vy	Vxy	Vz
9051	0.03	0.03	0.04	0.14
9052	0.03	0.04	0.04	0.14
9056	0.03	0.03	0.04	0.13
9057	0.03	0.03	0.04	0.13
9061	0.05	0.04	0.06	0.17
9062	0.04	0.02	0.04	0.15
9072	0.02	0.03	0.03	0.13
9075	0.04	0.04	0.06	0.14
9076	0.03	0.04	0.05	0.15
9077	0.03	0.03	0.04	0.15
9080	0.02	0.03	0.04	0.13
9081	0.05	0.04	0.06	0.18
9082	0.02	0.03	0.03	0.13
9085	0.04	0.05	0.06	0.15
9086	0.03	0.04	0.05	0.17
9087	0.04	0.04	0.05	0.15
9091	0.02	0.03	0.03	0.13
9092	0.02	0.02	0.03	0.12
9094	0.02	0.02	0.03	0.12
9095	0.02	0.02	0.03	0.12
9096	0.02	0.03	0.03	0.12
9097	0.02	0.03	0.04	0.12
9098	0.02	0.02	0.03	0.11
9099	0.02	0.02	0.03	0.11
9100	0.03	0.02	0.03	0.12
9101	0.03	0.02	0.03	0.12
9102	0.02	0.02	0.03	0.11
9103	0.02	0.02	0.03	0.11
9104	0.02	0.03	0.03	0.10
9105	0.02	0.03	0.03	0.10
9106	0.03	0.03	0.04	0.11
9107	0.03	0.03	0.04	0.11
9108	0.04	0.04	0.06	0.13
9109	0.03	0.04	0.05	0.13
9110	0.03	0.03	0.04	0.14
9111	0.03	0.03	0.04	0.14
9112	0.02	0.02	0.03	0.12
9113	0.02	0.02	0.03	0.12
9114	0.02	0.02	0.02	0.13
9115	0.02	0.02	0.02	0.13
9116	0.02	0.02	0.02	0.12
9117	0.02	0.02	0.02	0.12
9026A	0.02	0.03	0.03	0.13
9031A	0.02	0.02	0.03	0.12
9031B	0.03	0.03	0.05	0.15
9050A	0.03	0.03	0.04	0.14
9055A	0.03	0.03	0.04	0.14
9060A	0.03	0.05	0.06	0.15

SUMSQ	0.01	0.01	0.02	0.16
COUNT	77.00	77.00	77.00	77.00
AVG ERROR	0.01	0.01	0.01	0.04
MAX ERROR	0.06	0.04	0.07	0.14
MIN ERROR	0.01	0.01	0.01	0.03
RMSE	0.01	0.01	0.01	0.05

SUMSQ	0.09	0.09	0.19	1.68
COUNT	77.00	77.00	77.00	77.00
AVG ERROR	0.03	0.03	0.04	0.14
MAX ERROR	0.18	0.14	0.23	0.44
MIN ERROR	0.02	0.02	0.02	0.10
RMSE	0.03	0.03	0.05	0.15

LiDAR CONTROL POINTS ONLY

CALCULATED ACCURACIES:

0.01	Meters RMSEx
0.01	Meters RMSEy
0.01	Meters RMSExy
0.02	Meters at 95% C.I.
0.04	RMSEz
0.08	Meters at 95% C.I.

CALCULATED ACCURACIES:

0.03	Feet RMSEx
0.03	Feet RMSEy
0.04	Feet RMSExy
0.07	Feet at 95% C.I.
0.14	RMSEz
0.27	Feet at 95% C.I.

METERS

STATION	Vx	Vy	Vxy	Vz
9038	0.007	0.007	0.01	0.041
9043	0.007	0.008	0.01	0.043
9053	0.010	0.012	0.02	0.044
9068	0.006	0.007	0.01	0.045
9073	0.014	0.010	0.02	0.051
9078	0.009	0.009	0.01	0.042
9083	0.010	0.010	0.01	0.040
9088	0.010	0.009	0.01	0.043
9090	0.007	0.008	0.01	0.040
9093	0.008	0.008	0.01	0.037
9028A	0.006	0.006	0.01	0.040
9058A	0.007	0.009	0.01	0.041
9063A	0.008	0.008	0.01	0.042
SUMSQ	**0.00**	**0.00**	**0.00**	**0.02**
COUNT	**13.00**	**13.00**	**13.00**	**13.00**
AVG ERROR	**0.01**	**0.01**	**0.01**	**0.04**
MAX ERROR	**0.01**	**0.01**	**0.02**	**0.05**
MIN ERROR	**0.01**	**0.01**	**0.01**	**0.04**
RMSE	**0.01**	**0.01**	**0.01**	**0.04**

US FEET

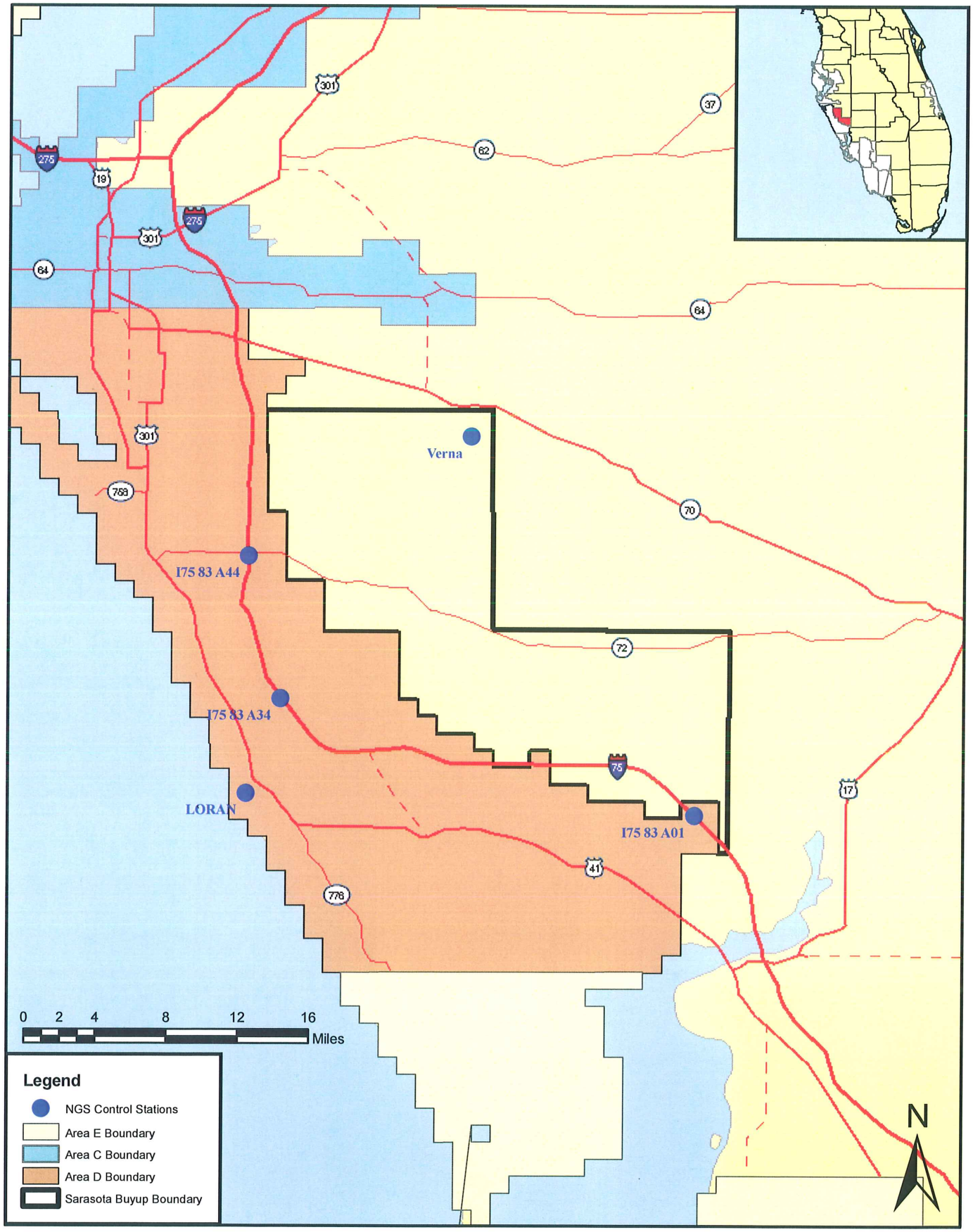
STATION	Vx	Vy	Vxy	Vz
9038	0.02	0.02	0.03	0.13
9043	0.02	0.03	0.03	0.14
9053	0.03	0.04	0.05	0.14
9068	0.02	0.02	0.03	0.15
9073	0.05	0.03	0.06	0.17
9078	0.03	0.03	0.04	0.14
9083	0.03	0.03	0.05	0.13
9088	0.03	0.03	0.04	0.14
9090	0.02	0.03	0.03	0.13
9093	0.03	0.03	0.04	0.12
9028A	0.02	0.02	0.03	0.13
9058A	0.02	0.03	0.04	0.13
9063A	0.03	0.03	0.04	0.14
SUMSQ	**0.01**	**0.01**	**0.02**	**0.25**
COUNT	**13.00**	**13.00**	**13.00**	**13.00**
AVG ERROR	**0.03**	**0.03**	**0.04**	**0.14**
MAX ERROR	**0.05**	**0.04**	**0.06**	**0.17**
MIN ERROR	**0.02**	**0.02**	**0.03**	**0.12**
RMSE	**0.03**	**0.03**	**0.04**	**0.14**

APPENDIX D: LAYOUT MAPS

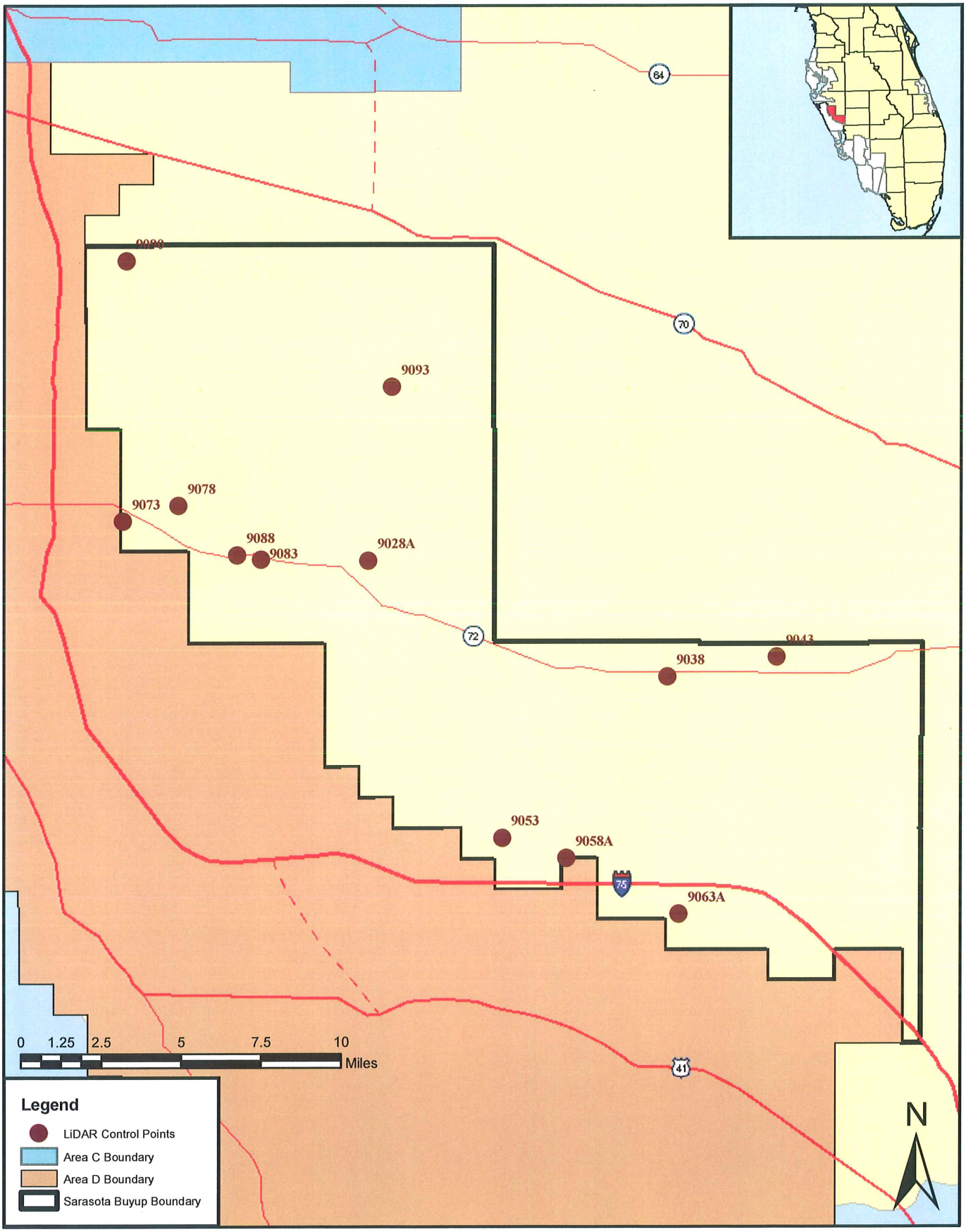
This appendix contains layout maps of the GPS Ground Control Stations, Newly Established Control Stations, LiDAR Control Points and LiDAR QA/QC Checkpoints for the Sarasota Buy-Up Area of the FY2007 State of Florida Division of Emergency Management Ground Control QA/QC Survey Mapping Project.

- GPS Control Stations
- LiDAR Control Points
- Brush Observations
- Forested Observations
- Low Grass or Bare Earth Observations
- Urban Observations

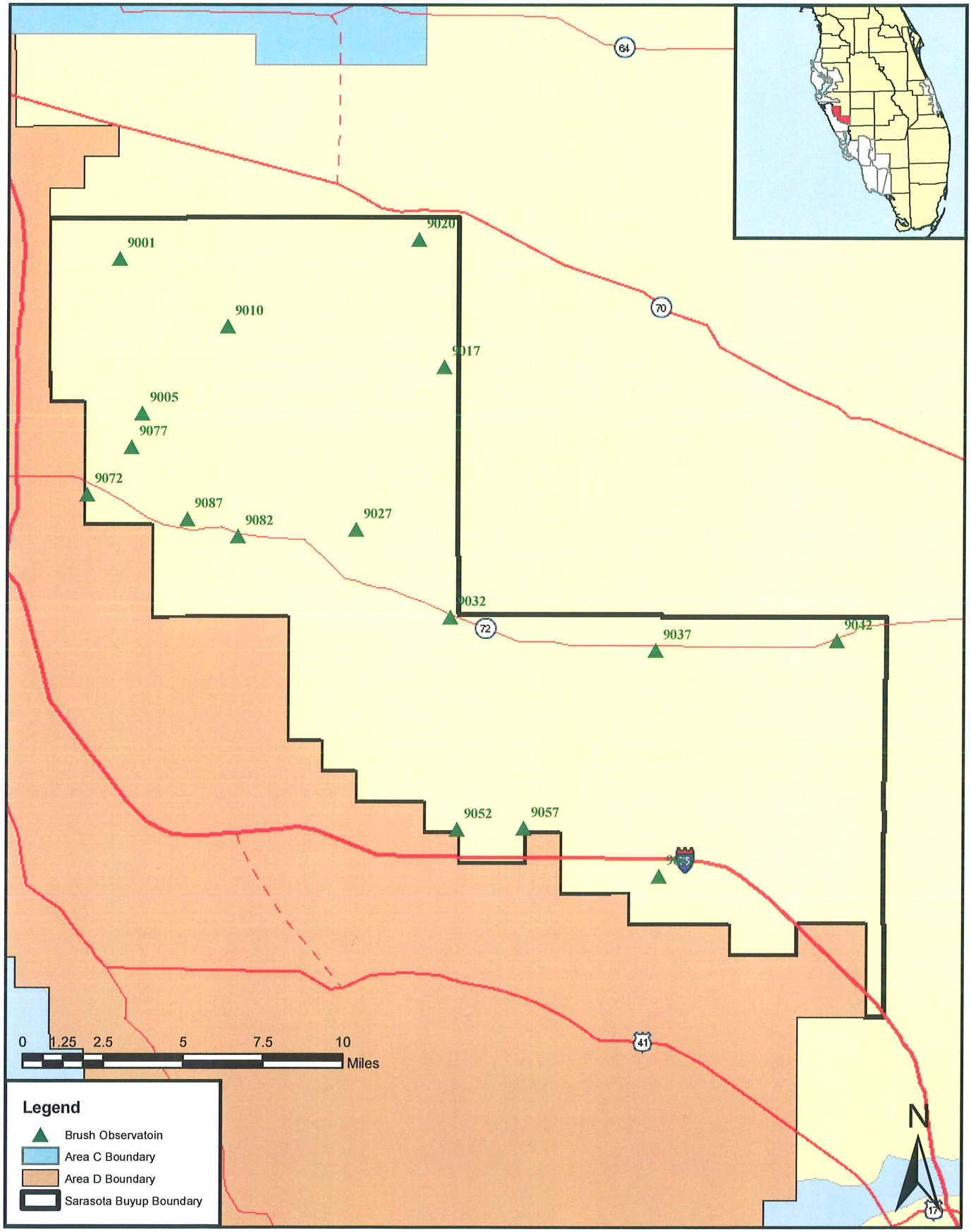
SARASOTA BUYUP - NGS CONTROL STATIONS



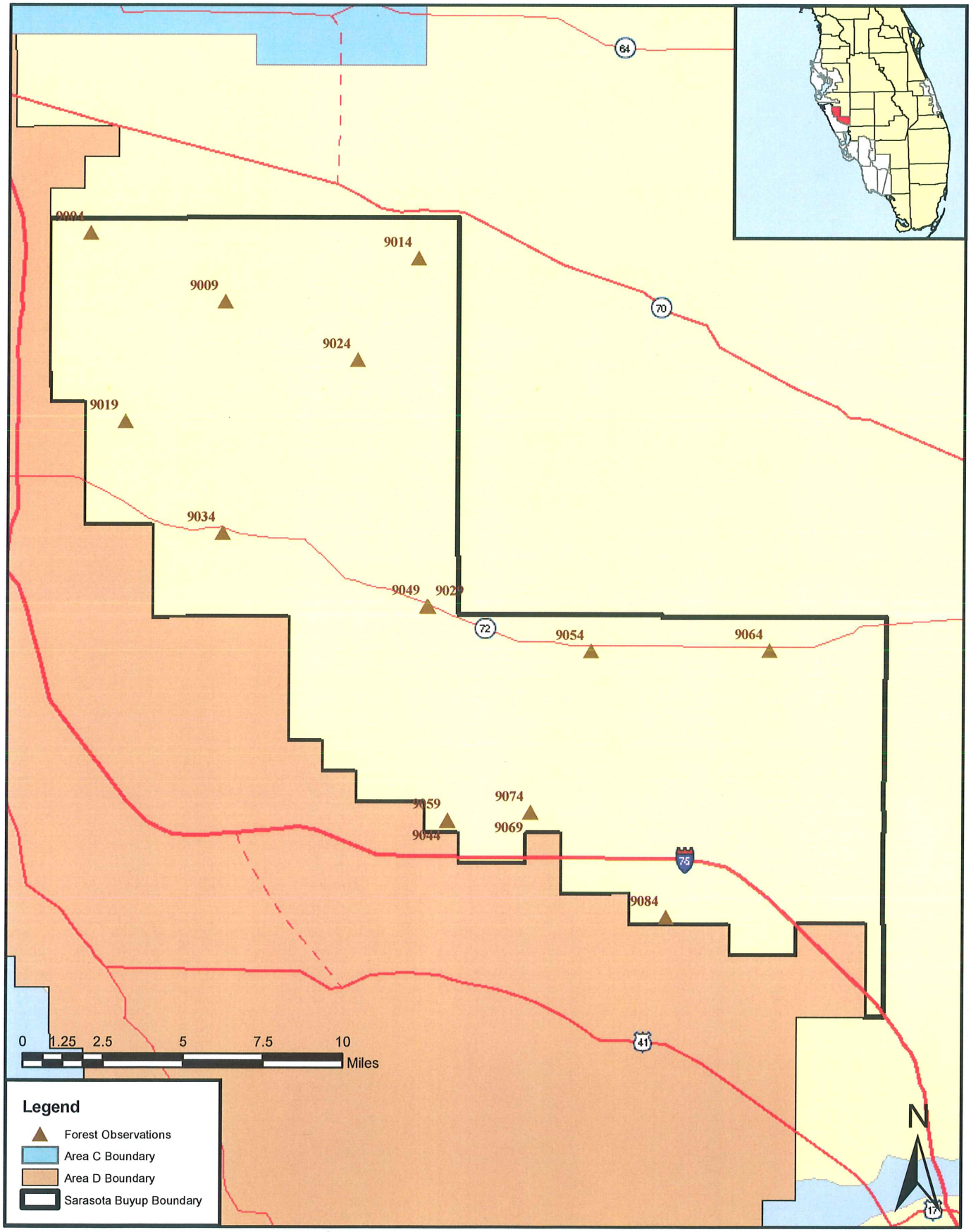
SARASOTA BUYUP - LIDAR CONTROL POINTS



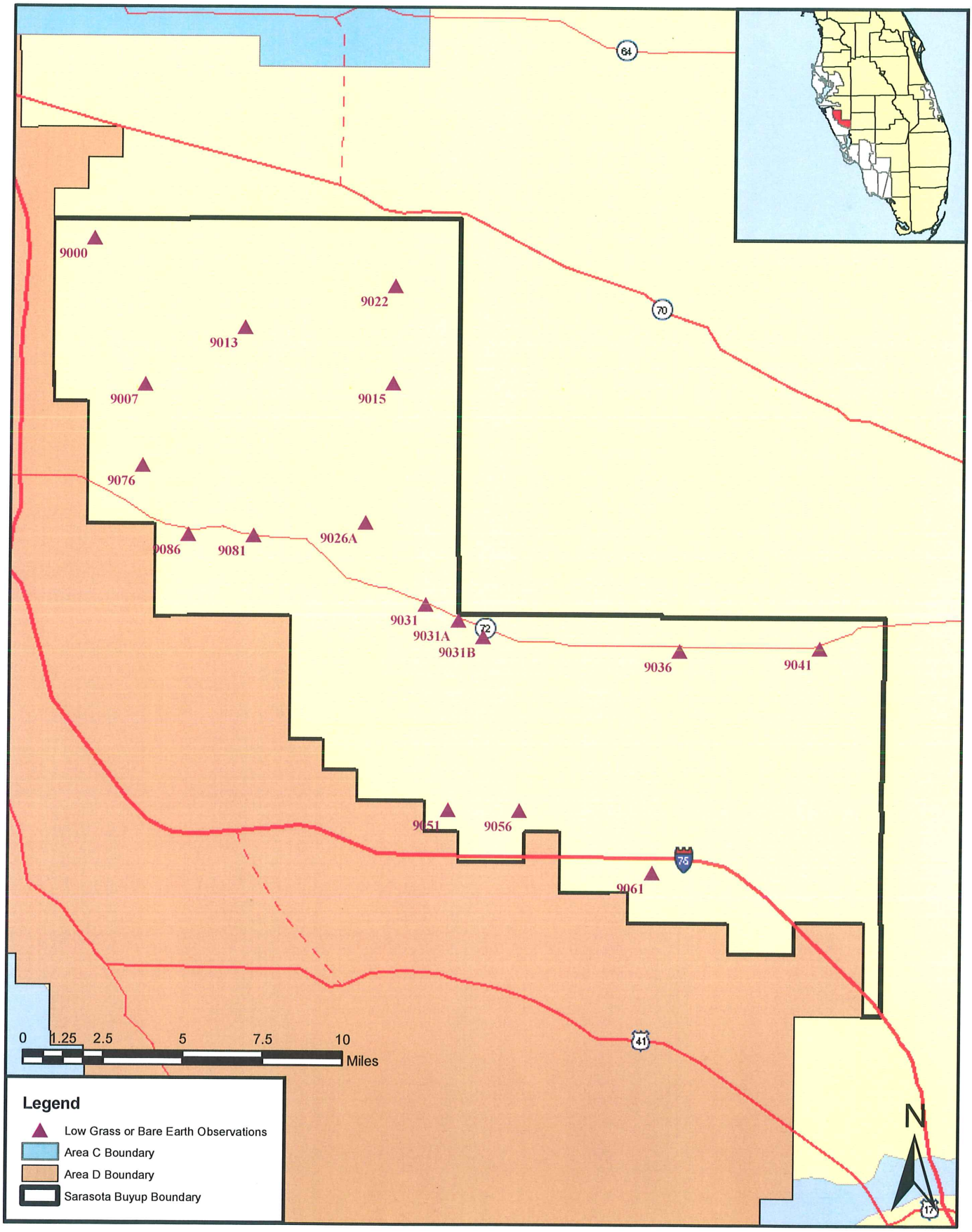
SARASOTA BUYUP - BRUSH



SARASOTA BUYUP - FORESTED



SARASOTA BUYUP - LOW GRASS OR BARE EARTH



SARASOTA BUYUP - URBAN