MINIMUM TECHNICAL STANDARDS
FINAL REPORT OF PHOTOGRAMMETRIC GROUND
CONTROL SURVEY

ST. JOHNS COUNTY 2008 - COUNTYWIDE
DIGITAL PHOTOGRAMMETRIC CONTOUR
MAPPING PROJECT

ST. JOHNS COUNTY PIGGYBACK CONTRACT ON
THE STATE OF FLORIDA DIVISION OF EMERGENCY
MANAGEMENT (DEM) CONTRACT NO.
07-HS-34-14-00-22-469

ST. JOHNS COUNTY, FLORIDA

Prepared By:

Woolpert, Inc.
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Orlando, Florida 32817-8340

WOOLPERT PROJECT NO. 67954

LB Number: 0006777

ISSUED: JUNE 2, 2008
QUALITY

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MTS REPORT OF
PHOTOGRAMMETRIC GROUND CONTROL SURVEY

St. Johns County 2008 - Countywide Digital Photogrammetric Contour Mapping Project

For:
St. Johns County Public Works Department
Engineering Division
2740 Industry Center Road
St. Augustine, FL 32084

By:
Woolpert, Inc.
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Prepared by:
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Florida Professional Surveyor and Mapper No. 5670

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SECTION 1
SECTION 1: PHOTOGRAMMETRIC GROUND CONTROL SURVEY REPORT

Introduction

This report contains an outline of the Photogrammetric Ground Control Survey that supported the St. Johns County, Florida 2008 Countywide Digital Contour Mapping Project; Contract No. 07-HS-34-14-00-22-469; and Woolpert Project No. 67954.

Project Area

The project area encompasses approximately +/- 726 square miles of St. Johns County in Florida. (Refer to Section 6: GPS Control Diagram and Data CDROM).

Purpose

The purpose of this survey was to establish three-dimensional coordinates for fourteen (14) new photogrammetric control stations, and recover and target one hundred eleven (111) existing St. Johns County photogrammetric control stations These ground control points, in conjunction with aerial triangulation, will be used as the basis for subsequent photogrammetric mapping as outlined in the Geospatial Positioning Accuracy Standards, Part 3: National Standard for Spatial Data Accuracy (NSSDA), published by the Federal Geographic Data Committee (FGDC-STD-007.3-1998) for ADS51 imagery and LIDAR mapping capable of producing 1”=100’ scale color infrared mapping with 0.5-foot pixel resolution, and DTM with 1-foot contours at +/-0.7-foot vertical accuracy in well define areas, at the 95% confidence level.

Date of Survey

All ground control field operations took place between January 14, 2008 and February 25, 2008.

Map Reference

There are no hardcopy map sheets required as a deliverable for this project.

Name of Responsible Surveyor

David M. Bruno, PSM
Woolpert, Inc.
11315 Corporate Blvd, Suite 115
Orlando, Florida 32817-8340
Professional Surveyor and Mapper Number 5670
Name of Company

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Orlando, Florida 32817-8340
Florida Certificate of Authorization No. LB-0006777

Abbreviations

1-D – One-Dimensional
2-D – Two-Dimensional
3-D – Three-Dimensional
cm – centimeter
DOI – Digital Orthophoto Imagery
FAC – Florida Administrative Code
FL – Florida
FGDC – Federal Geodetic Control Committee
GPS – Global Positioning System
Inc. – Incorporated
MTS – Florida Minimum Technical Standards (FAC 61G17)
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
DOI – Digital Orthophoto Imagery
PID – Photo Identifiable Point (feature)
PSM – Professional Surveyor and Mapper
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

Original 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

Prior to aerial imagery acquisition, St. John County field crews performed a field reconnaissance to verify the existence and suitability of pre-selected existing National Geodetic Survey (NGS) control stations and existing St. Johns County control stations from the 2002/2003 St. Johns County Aerial Mapping projects. These existing control stations were utilized to insure that quality x, y, and z coordinate values were computed for each of the newly established photogrammetric control stations.

St. Johns County field crews installed a total of fourteen (14) semi-permanent control stations in designated locations for both GPS observations and aerial imagery. These newly established imagery control stations consist of two types of control: thirteen (13) new pre-targeted control stations consisting of a 1/2-inch diameter by 18-inch long rebar with plastic red logo cap, stamped “SJC Trav”, placed in the center of a cloth target, and one (1) photo identifiable control stations (PID) consisting of the center of a manhole. These photogrammetric control station descriptions can be found in Section 2 of the report.

St. Johns County field crews also recovered and targeted one hundred eleven (111) existing photogrammetric control stations from the 2002/2003 St. Johns County Aerial Mapping projects. These photogrammetric control station descriptions can be found in Section 3 of the report.

Each photo control station, except for five PID’s, was targeted with an 8-foot by 8-foot by 2-foot fiberglass reinforced cloth material or painted target prior to the acquisition of aerial imagery.

Information sheets for the newly established control stations can be found in Section 4. These information sheets consist of ‘To Reach’ descriptions, sketches, witness ties, and geographic and grid coordinates. The computed elevations provided on these information sheets are based on the NAVD 88 datum. A control diagram showing the ground control stations used to support this photogrammetric mapping project can be found in Section 6 of this report.

Methodology

All field reconnaissance, monumentation, observations, data reductions, data adjustments, and final report development was performed under the direct supervision of David M. Bruno, PSM 5670, Professional Surveyor and Mapper in Charge.

Rapid Static GPS

Rapid-Static GPS surveying techniques were used for measuring all new photogrammetric ground control stations. Rapid-Static GPS surveying, requires a minimum of two receivers to occupy stations at either end of a baseline for approximately 10-15 minutes, depending upon baseline length, number of satellites, and satellite geometry. This is similar in theory to static surveying; however, shorter observation time is made possible due to advances in both hardware and software.

For this survey, Woolpert field crew utilized five (5), Woolpert-owned, Trimble Navigation 5000 series dual-frequency geodetic GPS receivers. Each observation session utilized a 5-second sync rate, lasting between 30-60 minutes each.
Datum Reference and Final Coordinates

All horizontal GPS control was based on the Florida State Plane Coordinate System (East Zone), referenced to North American Datum 1983, adjustment of 1990 (NAD83/1990) 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. These coordinates for the ground control survey can be found in Section 2 of this report.

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 Geomatics Office (TGO) version 1.63. 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 and St. Johns County control stations. Geoid 03 was used to model the elevations. For this survey the following stations were held fixed:

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<tr>
<th>Dimension</th>
<th>Existing NGS and County Control Stations</th>
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<tr>
<td>2-D Control Stations</td>
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Accuracy Statement

The positional accuracy of the new ground control data was 0.10-feet (avg. 0.04-feet) horizontally and 0.12-feet (avg. 0.07-feet) vertically at the 95% confidence level. The ground control survey meets positional accuracies necessary to support ADS51 imagery capable of producing 1” =100’ scale digital color infrared mapping with 0.5-foot pixel resolution, and DTM with 1-foot contours at +/-0.7-foot vertical accuracy in well define areas, at the 95% confidence level. The final grid coordinates with standard deviations can be found in Section 2 of this report.
Notes

1. THIS REPORT OF SURVEY IS PART OF THE PHOTOGRAMMETRIC GROUND CONTROL SURVEY. A GROUND CONTROL LAYOUT MAP SHALL ACCOMPANY THE SURVEY REPORT. NEITHER THE MAP 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 FORTY-ONE (41) 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 PHOTOGRAMMETRIC GROUND CONTROL SURVEY DATA AND REPORT IS CERTIFIED TO THE ST. JOHNS COUNTY AS MEETING OR EXCEEDING, IN QUALITY AND PRECISION, THE STANDARDS APPLICABLE FOR THIS WORK, AS SET FORTH IN CHAPTER 61G17-6, FLORIDA ADMINISTRATIVE CODE.

Surveyor and Mapper in Responsible Charge:
David M. Bruno, PSM
Professional Surveyor and Mapper
License Number: 5670

Signed: [Signature]

Seal: [Seal Image]
SECTION 2
SECTION 2: NEW GROUND CONTROL COORDINATE LISTING WITH STANDARD DEVIATIONS

- This section contains a complete listing of the Final Florida East State Plane Coordinates, Orthometric Heights, Standard Deviations, and Station Descriptions for the St. Johns County 2008 – Countywide Digital Photogrammetric Contour Mapping Project.
St. Johns County 2008 – Countywide
Digital Photogrammetric Contour Mapping Project

HORIZONTAL DATUM: NAD83 (1990)
VERTICAL DATUM: NAVD 88
UNITS: US SURVEY FEET
STATE PLANE ZONE: FLORIDA EAST
GEOID MODEL: GEOID 03
COORDINATE SYSTEM: GRID

New Photo Control Stations:

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<th>Grid Northing (USFT)</th>
<th>Grid Easting (USFT)</th>
<th>Station Elevation (USFT)</th>
<th>Y Std Dev. (USFT)</th>
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SECTION 3
SECTION 3: EXISTING ST. JOHNS COUNTY GROUND CONTROL COORDINATE LISTING

This section contains a complete listing of the St. Johns County existing ground control coordinates (Florida East State Plane), Orthometric Heights, and Station Descriptions that were recovered and re-targeted.

These existing ground control stations were referenced from the following project reports:

Survey Report for St. Johns County, Florida Geodetic Control Project
September 1994 through February 1999

and

St. Johns County Public Works Department
Provided by Woolpert in July 2003
Existing St. Johns County Ground Control Coordinate Listing

ST. JOHNS COUNTY 2008 – COUNTYWIDE DIGITAL
PHOTOGRAMMETRIC CONTOUR MAPPING PROJECT

HORIZONTAL DATUM: NAD83 (1990)
VERTICAL DATUM: NAVD 88
UNITS: US SURVEY FEET
STATE PLANE ZONE: FLORIDA EAST
GEOID MODEL: GEOID 03
COORDINATE SYSTEM: GRID

Existing Ground Control Points:

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SECTION 4
SECTION 4: NEW GROUND CONTROL STATION RECOVERY
INFORMATION SHEETS

This section contains the station recovery information sheets for each of the photo control stations and quality control check point that was established for the St. Johns County 2008 – Countywide Digital Photogrammetric Contour Mapping Project. Each information sheet contains a sketch, to reach description, witness ties, and geographic and grid coordinates.
### Station 08-01

Station 08-01 is located in the center of a manhole along Cachet Dr. From the intersection of SR 13 and Westberry Rd, proceed west on Westberry Rd for +/- 0.7 mi to Brady Place BLVD. Turn right and go north along Brady Place BLVD for +/- 0.1 mi to Cachet Dr. Turn Left and go west along Cachet Dr for +/- 0.1 mi to the station in the center of the road, just southeast of drive leading to house # 12645.

#### Station Description
- PID - Center of Manhole
- FLE0901
- NAVD 88
- Horiz-2nd Vert-3rd
- (GPS Derived)

#### Details
- **Quadrant Name:** ORANGE PARK
- **County:** DUVAL
- **Date Set or Found:** 1/28/2008
- **Latitude:** N 30°08'23.25452"
- **Longitude:** W 081°38'45.66621"
- **Horiz. Datum:** NAD83 (1990)
- **Zone:** FLE0901
- **Vert. Datum:** NAVD 88
- **Section-Town-Range:** 35S-26E
- **Northing (State Plane):** 2111345.61 (U.S. Feet)
- **Easting (State Plane):** 451963.13 (U.S. Feet)
- **Elevation:** 20.19
- **Order of Accuracy:** Horiz-2nd Vert-3rd
- **Person filling out form:** Greg Fox
- **Scale Factor:** 0.9999988955
- **Back Station I.D.:** N/A
- **Grid Azimuth & Distance to Back Station:** N/A
- **Established by Agency:** St Johns County
- **Convergence Angle:** -0°19'27.78127"
- **Ahead Station I.D.:** N/A
- **Grid Azimuth & Distance to Ahead Station:** N/A
- **Florida Professional Surveyor and Mapper:** David M. Bruno
- **Fia. Registration No.:** PSM 5670

#### Sketch:

![Sketch of station location](image)

#### Ref. # | Distance | Bearing | Description
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>1)</td>
<td>23.3'</td>
<td>NW</td>
<td>Fiberglass Light Pole</td>
</tr>
<tr>
<td>2)</td>
<td>36.9'</td>
<td>SW</td>
<td>SW Corner of Walk &amp; Driveway (#12645)</td>
</tr>
<tr>
<td>3)</td>
<td>29.1'</td>
<td>W</td>
<td>West Edge of Sidewalk</td>
</tr>
<tr>
<td>4)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
Station 08-02 is located along the north side of J Turner Butler BLVD. From the intersection of north A1A and J Turner Butler BLVD, go west along J Turner Butler BLVD for +/- 1.7 mi to the station on the right.

**Quad Name**
JACKSONVILLE BEACH

**County**
DUVAL

**Station Designation**
08-02

**Station Description**
1/2"x18" rebar with S.J.C. logo cap

<table>
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<th>Longitude</th>
<th>Horiz. Datum</th>
<th>Zone</th>
<th>Vert. Datum</th>
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**Section-Town-Range**
8-3S-29E

**Northing (State Plane)** 2154190.00 (U.S. Feet)
**Easting (State Plane)** 524901.60 (U.S. Feet)
**Elevation** 7.74

**Order of Accuracy** Horiz-2nd Vert-3rd (GPS Derived)

**Person filling out form**
Greg Fox

**Scale Factor** 0.999960918

**Back Station I.D.** N/A

**Grid Azimuth & Distance to Back Station** N/A

**Established by Agency**
St Johns County

**Convergence Angle** -0°12'34.23999"

**Ahead Station I.D.** N/A

**Grid Azimuth & Distance to Ahead Station** N/A

**Florida Professional Surveyor and Mapper**
David M. Bruno

**Fia. Registration No.**
PSM 5670

**Sketch:**

![Sketch Image]

<table>
<thead>
<tr>
<th>Ref. #</th>
<th>Distance</th>
<th>Bearing</th>
<th>Description</th>
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<tr>
<td>1)</td>
<td>33.3&quot;</td>
<td>N</td>
<td>Centerline of West Bound Lane</td>
</tr>
<tr>
<td>2)</td>
<td>406.0'</td>
<td>E</td>
<td>East End of Metal Guard Rail</td>
</tr>
<tr>
<td>3)</td>
<td>62.0'</td>
<td>W</td>
<td>Metal Light Pole</td>
</tr>
<tr>
<td>4)</td>
<td>146.3&quot;</td>
<td>E</td>
<td>Sign Post &quot;SAN PABLO RD&quot;</td>
</tr>
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<td>Quad Name</td>
<td>Station Designation</td>
<td>Station Description</td>
<td></td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------</td>
<td>----------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>JACKSONVILLE BEACH</td>
<td>08-03</td>
<td>1/2&quot;x18&quot; rebar with S.J.C. logo cap</td>
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**County**

DUVAL

**Date Set or Found**

1/28/2008

**Latitude**

N 30°15’37.11418”

**Longitude**

W 081°22’57.75906”

**Horiz. Datum**

NAD83 (1990)

**Zone**

FLE0901

**Vert. Datum**

NAVD 88

**Section-Town-Range**

10-3S-29E

**Northing (State Plane)**

2154800.14 (U.S. Feet)

**Easting (State Plane)**

535341.57 (U.S. Feet)

**Elevation**

10.32 (U.S. Feet)

**Order of Accuracy**

Horiz-2nd Vert-3rd (GPS Derived)

**Person filling out form**

Greg Fox

**Scale Factor**

0.999957903

**Back Station I.D.**

N/A

**Grid Azimuth & Distance to Back Station**

N/A

**Established by Agency**

St Johns County

**Convergence Angle**

-0°11’34.30112”

**Ahead Station I.D.**

N/A

**Grid Azimuth & Distance to Ahead Station**

N/A

**Florida Professional Surveyor and Mapper**

David M. Bruno

**Fia. Registration No.**

PSM 5670

### Sketch:

[Sketch of the area with reference points and measurements]

### Ref. # | Distance | Bearing | Description
--- | --- | --- | ---
1) | 160.3’ | E | Centerline of 37th Ave S & Ocean Drive
2) | 60.0’ | W | Center of the Wood WALK-Over
3) | 16.0’ | S | Decorative Concrete Wall
4) | N/A | N/A | N/A
### Photogrammetric Ground Control Survey Report

#### Section 4

<table>
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<th>Quad Name</th>
<th>ST AUGUSTINE</th>
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</thead>
<tbody>
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</tr>
<tr>
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</tr>
<tr>
<td>Latitude</td>
<td>N 29°58'26.27551&quot;</td>
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<tr>
<td>Longitude</td>
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<td>NAD83 (1990)</td>
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<tr>
<td>Zone</td>
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<td>Vert. Datum</td>
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<td>Station Designation</td>
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<td>Northing (State Plane)</td>
<td>2050594.59 (U.S. Feet)</td>
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<td>557688.39 (U.S. Feet)</td>
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<td>Elevation</td>
<td>16.42</td>
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<td>Order of Accuracy</td>
<td>Horiz-2nd Vert-3rd</td>
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<td>(GPS Derived)</td>
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<td>Greg Fox</td>
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<td>Grid Azimuth &amp; Distance to Back Station</td>
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<td>Established by Agency</td>
<td>Convergence Angle</td>
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<tr>
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<td>Grid Azimuth &amp; Distance to Ahead Station</td>
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<tr>
<td>Florida Professional Surveyor and Mapper</td>
<td>David M. Bruno</td>
</tr>
<tr>
<td>Fla. Registration No.</td>
<td>PSM 5570</td>
</tr>
</tbody>
</table>

#### Sketch

![Sketch Image]

#### Table

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<th>Description</th>
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<tr>
<td>1)</td>
<td>22.0'</td>
<td>W</td>
<td>Centerline of Coastal Highway</td>
</tr>
<tr>
<td>2)</td>
<td>19.6'</td>
<td>0W</td>
<td>Centerline of Concrete Drive (Ref. # 3129)</td>
</tr>
<tr>
<td>3)</td>
<td>51.7'</td>
<td>WNW</td>
<td>Wooden Utility Pole</td>
</tr>
<tr>
<td>4)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
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<tr>
<td>Ref. #</td>
<td>Distance</td>
<td>Bearing</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>----------</td>
<td>---------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>1</td>
<td>103.5'</td>
<td>W</td>
<td>Centerline of Longleaf Pine PKWY</td>
</tr>
<tr>
<td>2</td>
<td>212.7'</td>
<td>SW</td>
<td>Centerline of Roberts Rd</td>
</tr>
<tr>
<td>3</td>
<td>74.3'</td>
<td>N</td>
<td>Storm Manhole</td>
</tr>
<tr>
<td>4</td>
<td>40.9'</td>
<td>SE</td>
<td>Wooden Guy Pole</td>
</tr>
</tbody>
</table>

Station 08-05 is along Old Roberts Rd. From the intersection of Dam Rd and Greenbriar Rd, go west along Greenbriar Rd for +/- 2.6 mi to Longleaf Pike PKWY (old Roberts Rd). Turn right and go north along Longleaf Pike PKWY (old Roberts Rd) for +/- 0.3 mi to the station on the right.
Quad Name: SPUDS

Station 08-06 is located along the south side of SR 206. From the intersection of SR 206 and I-95 overpass, go southwest along SR 206 for +/- 2.3 mi to the station on the left.

<table>
<thead>
<tr>
<th>Quad Name</th>
<th>County</th>
<th>Station Designation</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPUDS</td>
<td>ST. JOHNS</td>
<td>08-06</td>
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<table>
<thead>
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<th>Latitude</th>
<th>Longitude</th>
<th>Horiz. Datum</th>
<th>Zone</th>
<th>Vert. Datum</th>
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<tbody>
<tr>
<td>1/28/2008</td>
<td>N 29°44'00.94381&quot;</td>
<td>W 081°22'52.42624&quot;</td>
<td>NAD83 (1990)</td>
<td>FLE0901</td>
<td>NAVD 88</td>
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<table>
<thead>
<tr>
<th>Section-Town-Range</th>
<th>Northing (State Plane)</th>
<th>Easting (State Plane)</th>
<th>Elevation</th>
<th>Order of Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>9-9S-29E</td>
<td>196324.02 (U.S. Feet)</td>
<td>535172.04 (U.S. Feet)</td>
<td>38.36</td>
<td>Horiz-2nd Vert-3rd</td>
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<table>
<thead>
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<th>Person filling out form</th>
<th>Scale Factor</th>
<th>Back Station I.D.</th>
<th>Grid Azimuth &amp; Distance to Back Station</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greg Fox</td>
<td>0.999957951</td>
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<td>N/A</td>
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<table>
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<tr>
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<th>Convergence Angle</th>
<th>Ahead Station I.D.</th>
<th>Grid Azimuth &amp; Distance to Ahead Station</th>
</tr>
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<tbody>
<tr>
<td>St Johns County</td>
<td></td>
<td>N/A</td>
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Florida Professional Surveyor and Mapper: David M. Bruno

Fla. Registration No.: PSM 5670

Sketch:

<table>
<thead>
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<th>Ref. #</th>
<th>Distance</th>
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<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>8.0</td>
<td>S</td>
<td>South Edge of SR 206</td>
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<tr>
<td>2)</td>
<td>12.7</td>
<td>92</td>
<td>Mag (PK) Nail</td>
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<tr>
<td>3)</td>
<td>15.0</td>
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<td>Mag (PK) Nail</td>
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<tr>
<td>4)</td>
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### Quad Name
**MATANZAS INLET**

### County
**ST. JOHNS**

### Date Set or Found
1/28/2008

### Latitude
N 29°44'26.23101" W 081°14'35.88760"

### Longitude
W 081°14'35.88760"

### Horiz. Datum
NAD83 (1990)

### Zone
FLE0901

### Vert. Datum
NAVD 88

### Section-Town-Range
11-9S-30E

### Northing (State Plane)
1965564.08 (U.S. Feet)

### Easting (State Plane)
578952.99 (U.S. Feet)

### Elevation
3.92

### Order of Accuracy
Horiz-2nd Vert-3rd (GPS Derived)

### Person filling out form
Greg Fox

### Scale Factor
0.999948008

### Back Station I.D.
N/A

### Grid Azimuth & Distance to Back Station
N/A

### Established by Agency
St Johns County

### Convergence Angle
-0°07'14.50738"

### Ahead Station I.D.
N/A

### Grid Azimuth & Distance to Ahead Station
N/A

### Florida Professional Surveyor and Mapper
David M. Bruno

### Fia. Registration No.
PSM 5570

### Sketch:
![Sketch](image)

### Table: Reference Points

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</thead>
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<tr>
<td>1)</td>
<td>80.0'</td>
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<td>Centerline of Drive ([RES.#7875])</td>
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<td>Wooden Utility Pole (#354435215)</td>
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<tr>
<td>3)</td>
<td>16.0'</td>
<td>W</td>
<td>West Edge of SR A 1 A</td>
</tr>
<tr>
<td>4)</td>
<td>4.5'</td>
<td>W</td>
<td>West Edge of Sidewalk</td>
</tr>
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</table>
Station 08-08 is located along on the east side of US 1. From the intersection of US 1 and I-95 overpass, go south along US 1 for +/- 0.2 mi to the station on the left, just south of CR 204.

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<td>DINNER ISLAND NE</td>
<td>08-08</td>
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| County             | ST. JOHNS           |

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<td>1/28/2008</td>
<td>N 29°39’31.72338”</td>
<td>W 081°17’13.56495”</td>
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<td>FLE0901</td>
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<th>Section-Town-Range</th>
<th>Northing (State Plane)</th>
<th>Easting (State Plane)</th>
<th>Elevation</th>
<th>Order of Accuracy</th>
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<tr>
<td>4-10S-30E</td>
<td>1935966.41</td>
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<td>24.37</td>
<td>Horiz-2nd Vert-3rd</td>
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<tr>
<td>Greg Fox</td>
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<td>N/A</td>
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<th>Ahead Station I.D.</th>
<th>Grid Azimuth &amp; Distance to Ahead Station</th>
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<td>St Johns County</td>
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<th>Fla. Registration No.</th>
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<tr>
<td>David M. Bruno</td>
<td>PSM 5570</td>
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| Sketch: |

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<th>Distance</th>
<th>Bearing</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
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<td>E</td>
<td>West Edge of US 1 (Northbound)</td>
</tr>
<tr>
<td>2)</td>
<td>111.0°</td>
<td>S</td>
<td>CL of South Drive to MOBIL Gas Station</td>
</tr>
<tr>
<td>3)</td>
<td>27.7</td>
<td>N/A</td>
<td>Wooden Utility Pole (#30137 7415)</td>
</tr>
<tr>
<td>4)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>
### Quad Name
SPUDS

### County
ST. JOHNS

### Date Set or Found
1/29/2008

### Latitude
N 29°39'05.94796"

### Longitude
W 081°22'47.15531"

### Horiz. Datum
NAD83 (1990)

### Zone
FLE0901

### Vert. Datum
NAVD 88

### Station Designation
08-09

### Station Description
1/2"x18" rebar with S.J.C. logo cap

### Section-Town-Range
9-10S-29E

### Northing (State Plane)
1933447.47

### Easting (State Plane)
535538.89

### Elevation
31.12

### Order of Accuracy
Horiz-2nd Vert-3rd

### (GPS Derived)

### Person filling out form
Greg Fox

### Scale Factor
0.999957850

### Back Station I.D.
N/A

### Grid Azimuth & Distance to Back Station
N/A

### Established by Agency
St Johns County

### Convergence Angle
-0°11'16.37421"

### Ahead Station I.D.
N/A

### Grid Azimuth & Distance to Ahead Station
N/A

### Florida Professional Surveyor and Mapper
David M. Bruno

### Fla. Registration No.
PSM 5670

### Sketch:

![Sketch Image](image-url)

### Reference Points:

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<td>43.0'</td>
<td>SW</td>
<td>Center of Headwall</td>
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<td>3)</td>
<td>36.7'</td>
<td>W</td>
<td>Wooden Utility Pole (805653664709)</td>
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<tr>
<td>4)</td>
<td>14.8'</td>
<td>SE</td>
<td>Stop Sign</td>
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<tr>
<td>Quad Name</td>
<td>Station Designation</td>
<td>Station Description</td>
<td></td>
</tr>
<tr>
<td>-----------</td>
<td>---------------------</td>
<td>---------------------</td>
<td></td>
</tr>
<tr>
<td>DURBIN</td>
<td>08-10</td>
<td>1/2&quot;x18&quot; rebar with S.J.C. logo cap</td>
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**County**

ST. JOHNS

**Date Set or Found**

1/28/2008

**Latitude**

N 30°02'52.13527"

**Longitude**

W 081°27'47.37097"

**Horiz. Datum**

NAD83 (1990)

**Zone**

FLE0901

**Vert. Datum**

NAVD 88

**Section-Town-Range**

42-5S-28E

**Northing (State Plane)**

2077614.44 (U.S. Feet)

**Easting (State Plane)**

509629.47 (U.S. Feet)

**Elevation**

28.13 (GPS Derived)

**Order of Accuracy**

Horiz-2nd Vert-3rd

**Person filling out form**

Greg Fox

**Scale Factor**

0.999965780

**Back Station I.D.**

N/A

**Grid Azimuth & Distance to Back Station**

N/A

**Established by Agency**

St Johns County

**Convergence Angle**

-0°13'54.90406"

**Ahead Station I.D.**

N/A

**Grid Azimuth & Distance to Ahead Station**

N/A

**Florida Professional Surveyor and Mapper**

David M. Bruno

**Fls. Registration No.**

PSM 5670

**Sketch:**

![Sketch of a map with North arrow]

**Ref. #** | **Distance** | **Bearing** | **Description** |
<table>
<thead>
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<tr>
<td>1)</td>
<td>21.6</td>
<td>N36</td>
<td>Centerline Intersection of Roads</td>
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<td>2)</td>
<td>17.5</td>
<td>S</td>
<td>Small Metal Sign Post</td>
</tr>
<tr>
<td>3)</td>
<td>15.5</td>
<td>SW</td>
<td>Top of Bank of Ditch</td>
</tr>
<tr>
<td>4)</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
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</table>
Quad Name: ORANGEDALE

County: ST. JOHNS

Date Set or Found: 1/28/2008

Latitude: N 30°03'14.19601"

Longitude: W 081°33'28.65684"


Zone: FLE0901

Vert. Datum: NAVD 88

Section-Town-Range: 23-5S-27E

Northing (State Plane): 2079976.89

Easting (State Plane): 479645.93

Elevation: 18.32

Order of Accuracy: Horiz-2nd, Vert-3rd (GPS Derived)

Person filling out form: Greg Fox

Scale Factor: 0.999976879

Back Station L.D.: N/A

Grid Azimuth & Distance to Back Station: N/A

Established by Agency: St. Johns County

Convergence Angle: -0°16'45.98992"

Ahead Station L.D.: N/A

Grid Azimuth & Distance to Ahead Station: N/A

Florida Professional Surveyor and Mapper: David M. Bruno

Fls. Registration No.: PSM 5570

Sketch:

<table>
<thead>
<tr>
<th>Ref. #</th>
<th>Distance</th>
<th>Bearing</th>
<th>Description</th>
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<tbody>
<tr>
<td>1)</td>
<td>13.7'</td>
<td>NW</td>
<td>Centerline Intersection of Two Dirt Roads</td>
</tr>
<tr>
<td>2)</td>
<td>46.6'</td>
<td>E</td>
<td>8-inch Pine Tree with Metal Sign “4”</td>
</tr>
<tr>
<td>3)</td>
<td>22.4'</td>
<td>SE</td>
<td>6-inch Pine Tree</td>
</tr>
<tr>
<td>4)</td>
<td>36.6'</td>
<td>SW</td>
<td>6-inch Pine Tree</td>
</tr>
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Quad Name: BAYARD

County: DUVAL

Date Set or Found: 1/28/2008

Latitude: N 30°07'36.44578"
Longitude: W 081°32'20.31993"
Zone: FLE0901
Vert. Datum: NAVD 88

Section-Town-Range: 30-4S-28E
Northing (State Plane): 2106441.16 (U.S. Feet)
Easting (State Plane): 485776.42 (U.S. Feet)
Elevation: 30.21 (U.S. Feet)
Order of Accuracy: Horiz-2nd Vert-3rd (GPS Derived)

Person filling out form: Greg Fox
Scale Factor: 0.999974442
Back Station I.D.: N/A
Grid Azimuth & Distance to Back Station: N/A

Established by Agency: St Johns County
Convergence Angle: -0°16'13.89790"
Ahead Station I.D.: N/A
Grid Azimuth & Distance to Ahead Station: N/A

Florida Professional Surveyor and Mapper: David M. Bruno
Fla. Registration No.: PSM 5570

Ref. # | Distance | Bearing | Description
--- | --- | --- | ---
1) | 35.0' | W | Centerline of Dirt Road
2) | 98.3' | S | Wood Power Pole with Railroad Spike
3) | 68.8' | W | 6-foot Chain-Link Fence
4) | 101.3' | SE | Wooden Power Pole

Sketch:
Station 08-13 is located on the east side of I-95 Northbound. From the intersection of International Golf Parkway and I-95, go north along I-95 for +11 3.0 m to the station on the right, just north of a turn-around in the median of I-95.

<table>
<thead>
<tr>
<th>Quad Name</th>
<th>Station Designation</th>
</tr>
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<tbody>
<tr>
<td>DURBIN</td>
<td>08-13</td>
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**County**

ST. JOHNS

**Date Set or Found**

1/28/2006

**Latitude**

N 30°01'33.25529"

**Longitude**

W 081°29'06.02065"

**Horiz. Datum**

NAD83 (1990)

**Zone**

FLE0901

**Vert. Datum**

NAVD 88

**Section-Town-Range**

33-5S-28E

**Northing (State Plane)**

2069675.29 (U.S. Feet)

**Easting (State Plane)**

502507.67 (U.S. Feet)

**Elevation**

33.29 (U.S. Feet)

**Order of Accuracy**

Horiz-2nd Vert-3rd (GPS Derived)

**Person filling out form**

Greg Fox

**Scale Factor**

0.99998230

**Back Station I.D.**

N/A

**Grid Azimuth & Distance to Back Station**

N/A

**Established by Agency**

St Johns County

**Convergence Angle**

-0°14'34.71060"

**Ahead Station I.D.**

N/A

**Grid Azimuth & Distance to Ahead Station**

N/A

**Florida Professional Surveyor and Mapper**

David M. Bruno

**Fia. Registration No.**

PSM 5670

**Sketch:**

![Sketch Image]

<table>
<thead>
<tr>
<th>Ref. #</th>
<th>Distance</th>
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<th>Description</th>
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<tbody>
<tr>
<td>1</td>
<td>32.6</td>
<td>SW</td>
<td>North End of Concrete Headwall</td>
</tr>
<tr>
<td>2</td>
<td>23.0</td>
<td>NW</td>
<td>South End of Concrete Headwall</td>
</tr>
<tr>
<td>3</td>
<td>14.2</td>
<td>E</td>
<td>East Edge of I-95 Northbound</td>
</tr>
<tr>
<td>4</td>
<td>N/A</td>
<td>N/A</td>
<td>N/A</td>
</tr>
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</table>
Station 08-14 is located on the west of SR A-1-A and on the property of the U.F. Whitney Laboratory for Marine Bio-Science. From the intersection of SR A-1-A and SR 206, go south along SR A-1-A for +7.5 ft to the entrance of the U.F. Whitney Laboratory for Marine Bio-Science at the County Line. Turn right and go west along an asphalt drive into the complex for +150 feet to a drive leading north. Turn right and go north along drive to a bend in the road west. Continue westerly to a parking area on the right and the station on the right north end of an open field.

<table>
<thead>
<tr>
<th>Date Set or Found</th>
<th>Latitude</th>
<th>Longitude</th>
<th>Horiz. Datum</th>
<th>Zone</th>
<th>Vert. Datum</th>
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<tr>
<td>1/28/2008</td>
<td>N 29°40'15.65460&quot;</td>
<td>W 081°12'52.39111&quot;</td>
<td>NAD83 (1990)</td>
<td>FLE0901</td>
<td>NAVD 88</td>
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<table>
<thead>
<tr>
<th>Section-Town-Range</th>
<th>Northing (State Plane)</th>
<th>Easting (State Plane)</th>
<th>Elevation</th>
<th>Order of Accuracy</th>
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<tr>
<td>0-08-0E</td>
<td>1940354.15 (U.S. Feet)</td>
<td>588029.76 (U.S. Feet)</td>
<td>3.28</td>
<td>Horiz-2nd Vert-3rd (GPS Derived)</td>
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<table>
<thead>
<tr>
<th>Person filling out form</th>
<th>Scale Factor</th>
<th>Back Station I.D.</th>
<th>Grid Azimuth &amp; Distance to Back Station</th>
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<tbody>
<tr>
<td>Greg Fox</td>
<td>0.999946496</td>
<td>N/A</td>
<td>N/A</td>
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<th>Established by Agency</th>
<th>Convergence Angle</th>
<th>Ahead Station I.D.</th>
<th>Grid Azimuth &amp; Distance to Ahead Station</th>
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<tr>
<td>St Johns County</td>
<td>-0°06'22.34978&quot;</td>
<td>N/A</td>
<td>N/A</td>
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</table>

<table>
<thead>
<tr>
<th>Florida Professional Surveyor and Mapper</th>
<th>Fls. Registration No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>David M. Bruno</td>
<td>PSM 5870</td>
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<table>
<thead>
<tr>
<th>Ref. #</th>
<th>Distance</th>
<th>Bearing</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1)</td>
<td>168.0'</td>
<td>N</td>
<td>Centerline of Drive and Parking Area</td>
</tr>
<tr>
<td>2)</td>
<td>133.1'</td>
<td>NW</td>
<td>Wooden Power Pole</td>
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<tr>
<td>3)</td>
<td>44.9'</td>
<td>NE</td>
<td>Northeast Corner of Modular Home</td>
</tr>
<tr>
<td>4)</td>
<td>31.2'</td>
<td>NE</td>
<td>12-inch Palm Tree</td>
</tr>
</tbody>
</table>
SECTION 5
SECTION 5: EXISTING CONTROL INFORMATION SHEETS

This contains the published National Geodetic Survey (NGS) and St. Johns County control used in the final control network for the St. Johns County 2008 – Countywide Digital Photogrammetric Contour Mapping Project.
The NGS Data Sheet

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

DATABASE = , PROGRAM = datasheet, VERSION = 7.59
1
National Geodetic Survey, Retrieval Date = APRIL 23, 2008
AQ0389

AQ0389 DESIGNATION - DUPONT 2
AQ0389 PID - AQ0389
AQ0389 STATE/COUNTY - FL/ST JOHNS
AQ0389 USGS QUAD - DINNER ISLAND NE (1992)

AQ0389

AQ0389* NAD 83(1990)- 29 44 49.14788(N) 081 20 55.07130(W) ADJUSTED
AQ0389* NAVD 88 - 12.040 (meters) 39.50 (feet) ADJUSTED

AQ0389 LAPLACE CORR- -0.65 (seconds) DEFLEC99
AQ0389 GEOID HEIGHT- -28.70 (meters) GEOID03
AQ0389 DYNAMIC HT - 12.024 (meters) 39.45 (feet) COMP
AQ0389 MODELED GRAV- 979,292.3 (mgal) NAVD 88

AQ0389 HORZ ORDER - SECOND
AQ0389 VERT ORDER - SECOND CLASS I

AQ0389 The horizontal coordinates were established by classical geodetic methods
AQ0389 and adjusted by the National Geodetic Survey in May 1991.
AQ0389
AQ0389 The orthometric height was determined by differential leveling
AQ0389 and adjusted in May 2004.
AQ0389
AQ0389 The Laplace correction was computed from DEFLEC99 derived deflections.
AQ0389
AQ0389 The geoid height was determined by GEOID03.
AQ0389
AQ0389 The dynamic height is computed by dividing the NAVD 88
AQ0389 geopotential number by the normal gravity value computed on the
AQ0389 Geodetic Reference System of 1980 (GRS 80) ellipsoid at 45
AQ0389 degrees latitude (g = 980.6199 gals.).
AQ0389
AQ0389 The modeled gravity was interpolated from observed gravity values.
AQ0389

AQ0389; SPC FL E - 599,873.416 166,278.775 MT 0.99995520 -0 10 22.7
AQ0389; SPC FL E - 1,968,084.70 545,532.95 sFT 0.99995520 -0 10 22.7
AQ0389; UTM 17 - 3,290,800.723 466,290.280 MT 0.99961402 -0 10 22.7

AQ0389! Elev Factor x Scale Factor = Combined Factor
AQ0389! 1.00000262 x 0.99995520 = 0.99995782
AQ0389! 1.00000262 x 0.99961402 = 0.99961664

AQ0389| PID | Reference Object | Distance | Geod. Az |
<table>
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</thead>
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<tr>
<td>AQ0389</td>
<td>CW3596 DUPONT RM 4</td>
<td>03924</td>
<td></td>
</tr>
<tr>
<td>AQ0389</td>
<td>CW3593 DUPONT AZ MK 2</td>
<td>0613603.7</td>
<td></td>
</tr>
<tr>
<td>AQ0389</td>
<td>AQ0385 I95 72 B42</td>
<td>221.327 METERS 06648</td>
<td></td>
</tr>
<tr>
<td>AQ0389</td>
<td>AQ2015 DUPONT RESET</td>
<td>89.714 METERS 06715</td>
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<tr>
<td>AQ0389</td>
<td>AQ0391 DUPONT 2 RM 2</td>
<td>26.323 METERS 24353</td>
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<tr>
<td>AQ0389</td>
<td>AQ0392 DUPONT 2 AZ RESET</td>
<td>2473048.5</td>
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<tr>
<td>AQ0389</td>
<td>AQ0390 DUPONT 2 RM 1</td>
<td>29.746 METERS 33702</td>
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AQ0389

AQ0389

AQ0389
SUPERSEDED SURVEY CONTROL

ADM 83(1986) - 29 44 49.15428(N) 081 20 55.08166(W) AD( ) 2
ADM 27 - 29 44 48.26070(N) 081 20 55.082820(W) AD( ) 2
NAVD 88 (06/15/91) 12.042 (m) 39.51 (f) UNKNOWN 2 2
NGVD 29 (??/??/92) 12.360 (m) 40.55 (f) ADJ UNCH 2 2

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

U.S. NATIONAL GRID SPATIAL ADDRESS: 17RMN6629090801(NAD 83)
MARKER: DS = TRIANGULATION STATION DISK
SETTING: 7 = SET IN TOP OF CONCRETE MONUMENT
STAMPING: DUPONT 2 1964
MARK LOGO: CGS
MAGNETIC: N = NO MAGNETIC MATERIAL
STABILITY: C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO
SATELLITE: THE SITE LOCATION WAS REPORTED AS SUITABLE FOR
SATELLITE OBSERVATIONS - July 01, 1999

HISTORY - Date     Condition Report By
1964     MONUMENTED       CGS
1965     GOOD             CGS
1973     GOOD             FLDT
1973     GOOD             NGS
1988     GOOD             USPSQD
19990701 GOOD             FLDEP

STATION DESCRIPTION

DESCRIBED BY COAST AND GEODETIC SURVEY 1964 (KAM)
STATION IS LOCATED ABOUT 12 MILES SOUTHWEST OF ST. AUGUSTINE,
2.25 MILES WEST OF DUPONT CENTER, AND ABOUT 600 FEET WEST
OF THE CENTERLINE OF INTERSTATE HIGHWAY 95 WHICH IS NOW
BEING CONSTRUCTED. IT IS 47.5 FEET SOUTH OF THE CENTERLINE OF
STATE ROAD 206, 2.5 FEET NORTH OF A METAL WITNESS POST AND
SIGN. IT IS A STANDARD DISK SET FLUSH WITH THE GROUND AND
IS STAMPED DUPONT 2 1964.

REFERENCE MARK NO. 1 IS 50.5 FEET NORTH OF THE CENTERLINE
OF THE ROAD, 2 FEET SOUTH OF A METAL WITNESS POST AND
SIGN. IT IS A STANDARD DISK WHICH PROJECTS 2 INCHES AND IS
STAMPED DUPONT 2 NO 1 1964.

REFERENCE MARK NO. 2 IS 49 FEET SOUTH OF THE CENTERLINE OF THE
ROAD, 1.5 FEET NORTH OF A METAL WITNESS POST AND SIGN. IT IS
A STANDARD DISK WHICH PROJECTS 2 INCHES AND IS STAMPED
DUPONT 2 NO 2 1964.

REFERENCE MARK NO. 3 IS 0.25 MILE EAST OF THE STATION, 46 FEET NORTH
OF THE CENTERLINE OF STATE ROAD 206, 6 FEET SOUTHWEST OF A
INCH PINE TREE, 1.5 FEET NORTH OF A METAL WITNESS POST
AND SIGN. IT IS A STANDARD DISK WHICH PROJECTS 4 INCHES AND
IS STAMPED DUPONT 1933 1962.

NOTE--THIS AZIMUTH MARK WAS FORMERLY THE AZIMUTH MARK TO STATION
DUPONT 1933 1952.

TO REACH THE STATION FROM DUPONT CENTER AT THE JUNCTION OF
AQ0389'U.S. HIGHWAY 1 AND STATE ROAD 206, GO WEST ON STATE ROAD
AQ0389'206 FOR 2.0 MILES TO THE AZIMUTH MARK ON THE RIGHT, CONTINUE
AQ0389'WEST FOR 0.25 MILE TO THE STATION ON THE LEFT AS DESCRIBED.
AQ0389'
AQ0389'HEIGHT OF LIGHT ABOVE STATION MARK 1 METER.
AQ0389
AQ0389
AQ0389
AQ0389'

AQ0389'RECOVERY NOTE BY COAST AND GEODETIC SURVEY 1965 (JB)
AQ0389'RECOVERED ALL MARKS IN GOOD CONDITION. NO PRIOR DESCRIPTION
AQ0389'WAS AVAILABLE.
AQ0389'
AQ0389'ABOUT 12 MILES S OF ST. AUGUSTINE, 2.1 MILES W ALONG NO. 206
AQ0389'FLORIDA HWY. FROM ITS INTERSECTION WITH NO. 1 U.S. HWY. AT
AQ0389'DUPONT CENTER, ABOUT 745 FEET W ALONG SAID SAME FROM ITS
AQ0389'INTERSECTION WITH THE C/L OF NO. 95 INTERSTATE HWY., 98 FEET
AQ0389'W OF A CORNER IN HWY. RIGHTS-OF-WAY, 47.5 FEET S OF CENTER
AQ0389'LINE OF NO. 206 HWY. 20-FOOT ASPHALT PAVEMENT, ABOUT A FOOT
AQ0389'LOWER THAN SAME, STANDARD DISKS STAMPED DUPONT 2 1964
AQ0389'THE UPPER ONE FLUSH WITH THE
AQ0389'GROUND, AND 2.6 FEET N OF STEEL WITNESS POST.
AQ0389'
AQ0389'

AQ0389'RECOVERY NOTE BY FLORIDA DEPARTMENT OF TRANSPORTATION 1973
AQ0389'17.8 MI S FROM ST AUGUSTINE.
AQ0389'FROM THE INTERSECTION OF U.S. 1 AND STATE ROAD 16 IN ST. AUGUSTINE
AQ0389'PROCEED WEST ON STATE ROAD 16 FOR ABOUT 5.4 MILES TO INTERSTATE
AQ0389'ROUTE 95 THEN SOUTH ON INTERSTATE ROUTE 95 FOR ABOUT 12.3 MILES TO
AQ0389'STATE ROAD 206 THEN WEST FOR ABOUT 0.05 MILE AND STATION MARK,
AQ0389'WHICH IS SET IN THE TOP OF A CONCRETE MONUMENT 2 INCHES BELOW
AQ0389'THE GROUND. IT IS 2.7 FEET NORTHWEST OF A METAL WITNESS POST
AQ0389'AND 47.5 FEET SOUTHEAST OF CENTERLINE OF STATE ROAD 206. SECTION
AQ0389'2, T 9 S, R 29 E.
AQ0389'

AQ0389
AQ0389

AQ0389'RECOVERY NOTE BY NATIONAL GEODETC SURVEY 1973 (CBM)
AQ0389'STATION RECOVERED IN GOOD CONDITION, AS DESCRIBED BY J. BULL
AQ0389'IN 1965. A DIFFERENCE WAS NOTICED IN DISTANCE TO REFERENCE
AQ0389'MARK NUMBER 1, DISTANCE BEING 29.746 METERS, OR 97.60 FEET.
AQ0389'

AQ0389
AQ0389

AQ0389'RECOVERY NOTE BY US POWER SQUADRON 1988 (JD)
AQ0389'RECOVERED IN GOOD CONDITION.
AQ0389  STATION RECOVERY (1999)
AQ0389
AQ0389'RECOVERY NOTE BY FL DEPT OF ENV PRO 1999 (JLM)
AQ0389'RECOVERED AS DESCRIBED.
****** ORIGINAL DESCRIPTION ******

SSN: 0050
Designation: GO27 PRIM MK

Approx. Latitude: 295458N
Approx. Longitude: 0812124W
State: FL
County: ST JOHNS

Stamping: ST JOHNS COUNTY G027 GPS MONUMENT
Disk From: FL-109


Surface Mark-
Type: Survey disk
Magnetic code: R
Setting: SET INTO THE TOP OF A CONCRETE MONUMENT
Rod depth:
Sleeve Depth:

****Mark is suitable for GPS
Set by ST JOHNS in 1995, Chief of party TMD.

---------------------------------------------------------------------

DESCRIPTION BY ST JOHNS COUNTY, GPS SURVEY (1995).

TO REACH PRIMARY STATION LOCATED WEST OF ST AUGUSTINE CITY LIMITS FROM THE
INTERSECTION OF US1 AND STATE ROAD 16, PROCEED WEST ON SR 16 FOR 1.9 MILES
(3.1 KM) TO STATION IN THE MEDIAN OF DIVIDED HIGHWAY. STATION IS A BRASS DISK,
STAMPED ST JOHNS COUNTY GPS MONUMENT GO27, SET IN THE TOP OF A POURED IN PLACE
CONCRETE MONUMENT. IT IS 0.8 FEET (24.4 CM) BELOW GROUND LEVEL, 23.3 FEET
(7.1 M) SOUTH OF CENTERLINE OF WEST BOUND SR 16, 76.7 FEET (23.4 M) WEST OF
CENTERLINE OF TENTH ST, AND 357.0 FEET (108.8 M) WEST OF CENTERLINE OF MAIN
ENTRANCE OF ST JOHNS RIVER COMMUNITY COLLEGE.
GPS Station Recovery - GPS Log Sheet

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>St John's County 2008</th>
<th>Operator Name</th>
<th>William Smith</th>
<th>Job No.</th>
<th>67954 &amp; 60531</th>
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<td>Station Name:</td>
<td>L15</td>
<td>Data of Survey:</td>
<td>2/11/08</td>
<td>Julian Day:</td>
<td></td>
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<td>UTM Zone/Zone Location</td>
<td></td>
<td>File Name:</td>
<td></td>
<td>Session #:</td>
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<td>Latitude</td>
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<td>Type of Antenna:</td>
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<td>Ellip. Height</td>
<td>30.83 Meters</td>
<td>Antenna Height:</td>
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<td></td>
<td>Meters</td>
<td>Phase Center</td>
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<td>Type of Mark:</td>
<td>1/2&quot; red with cap</td>
<td>Start Time (local):</td>
<td>9:53 am</td>
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<td></td>
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<td>Stamping on Mark:</td>
<td>STC TRAV</td>
<td>Weather Condition:</td>
<td>Sunny Clear Skies</td>
<td></td>
<td></td>
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<tr>
<td>To-Reach Description:</td>
<td>From intersection of SR 16 and Interstate 95 head North on I-95. Get off at 290 East on 290. To first road on right which is Sandy Creek Parkway. Go South on Sandy Creek Parkway until you reach a two track road on left with power lines over head. Go East and L15 is on South side.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reference Object</th>
<th>Distance</th>
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<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Diagram:
- North
- PINE TREES
- Sandy Creek Parkway
- 290 East
- Sandy Creek Parkway
- L15
- North of road line

Woolpert, Inc.
Countywide Digital Photogrammetric Contour Mapping Project
St. Johns County, Florida
Photogrammetric Ground Control Survey Report
Section 5: Page 7 of 7
SECTION 6
SECTION 6: GPS CONTROL DIAGRAM AND DATA CD ROM

This section contains a graphical representation of the new and existing control stations used for this photogrammetric mapping project.

This section also contains a CD ROM with all the pertinent files pertaining to this project.