



The Florida Surveyor

Volume XXVII, Issue 5

May 2019

**2022 SPCS:
Florida's Design**
Page 10

In This Issue

- The Forbes Purchase
- Conference Registration
- New Solar Cycle

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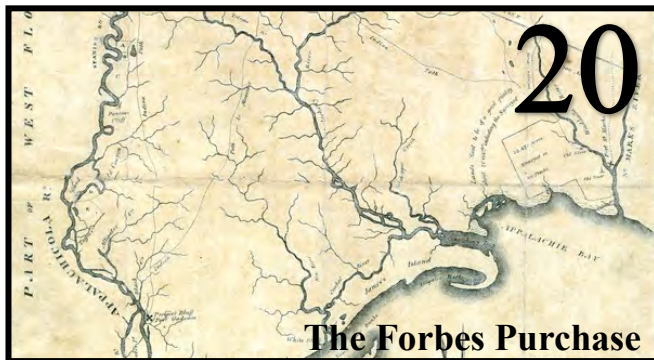
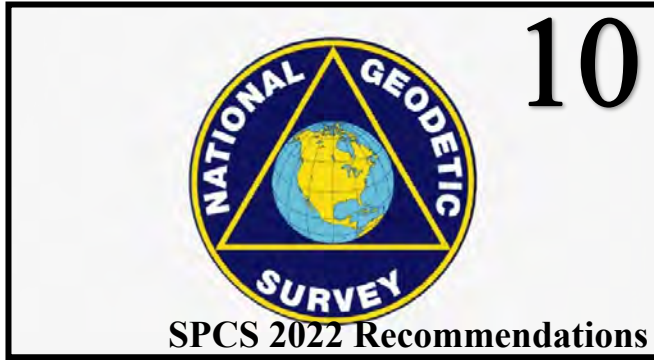


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Conference Registration Now Open | 4

FSMS Topgolf Tournament | 5

President's Message | 6

Surveyors in Government | 7

NSRS Modernization News | 9

Around The State | 29

Collier-Lee Annual Golf Tournament | 30

N.W. Florida March Madness Winner | 32

CST-1 Course in Naples | 33

Education Course Information | 34

Chapter Presidents | 37

Districts and Directors | 38

Committees and Admn. Staff | 39

Sustaining Firms | 40

Additional Information | 42

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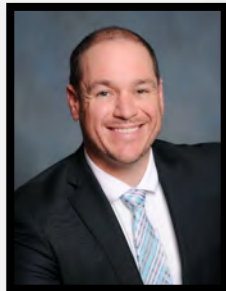
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President's Message



I hope everyone had a joyous and blessed Easter. It's always nice to get some time off to have fun with family over the Spring Break and Easter holidays.

April has been a busy month for FSMS. We started the month with our Strategic Planning Meeting (SPM) held in Tallahassee on April 5th and 6th. The meeting, led by President-Elect Don Elder, began by reviewing our approved plan from last year and identifying all the things we've been able to do right. One such area of improvement is our website. It is now much more functional, and we are making continuous improvements to it as we explore new ways to improve the member experience. We have made a lot of progress on improving communication with members and utilizing social media accounts to reach a broader audience. Dominic Levings, our Communications Director, has done a fantastic job for us.

We have continued to be focused on our legislative affairs, and we will be making it through this Legislative Session in good shape. Richard Allen and Bill Muscatello have done a great job in moving forward with addressing Chapter 177 revisions and updates. They have enlisted surveyors from both the public and private sectors to assist in this effort. Through discussion at the SPM, we've identified many things we, as a Society, can do to restructure and reorganize in order to provide value to all our members, from all generations. We are also still working to improve our education program by increasing the amount of quality offerings. This is a huge task that won't happen overnight, but progress is being made.

On April 9th-13th, I was honored to represent Florida at the National Society of Professional Surveyors (NSPS) Spring Meeting in Arlington, Virginia. This was the first national meeting I have attended, and I really enjoyed being there and meeting many surveyors from all over the country.

Capitol Hill Day was a great experience, and everyone should try to participate in it at least once. I had the unique opportunity to be a part of a bill Senator Rubio introduced on Thursday of that week entitled The National Flood Insurance Rate Map Interagency Technology Act of 2019. This bill promotes the sharing of data across agencies promoting uniformity of basic database information. This bill also promotes adding cadastral features to the NFIP rate maps. I believe this will make these maps much more user-friendly. Lastly, it identifies a time frame in which the maps will be updated to reflect the 2022 Datum Change. We were pleased to applaud and commend Senator Rubio in his press release for taking this action.

The NSPS Committee Meetings, along with their Board Meeting, were all very informative. Surveyors, associations, and education/academic endeavors across the country are facing the same challenges we have here in Florida, and this gives us another resource to find the solutions to these issues. There are some really smart minds out there all working together for the common cause of ensuring our profession not only survives but thrives in the future.

Remember Conference registration is NOW OPEN. It's going to be a great time in Orlando on July 24th-27th. Register for conference, get your hotel room reserved and come enjoy some amazing nationally recognized instructors, our new Topgolf event, and many more fun events like the Welcome BBQ, Exhibit Hall, and Recognition Banquet.

And for all who have "mothers" in their lives, be they mothers, grandmothers, sisters, wives or daughters, use Mother's Day this month to show them how important they are and how much they mean to you!

"You cannot escape the responsibility of tomorrow by evading it today."
-Abraham Lincoln

Dianne Collins
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dcollins@collinssurvey.com

Surveyors in Government



Richard Allen, PSM, CFM

Greetings to all my fellow government surveyors. This month I had no specific topic to write about, other than providing updates on an initial meeting to discuss Florida Statutes Chapter 177. The meeting, which was held at the Orange County government offices, was graciously hosted by Bill Muscatello, the Orange County Surveyor. This meeting was an introductory meeting to hear input and gather feedback from the attendees. The chapter was read line by line and after two hours we made it to the beginning of 177.091 - the meat and potatoes of the whole kit and caboodle!

Attending the meeting were three county surveyors, a city surveyor, other government surveyors, and a few professionals from the private sector. Comments and feedback were provided by Gail Oliver, St. Johns County Surveyor, who provided input and history on previous rewrites of 177. Several issues that we each had experienced or have been questioned on came up. One issue is monumentation, specifically requiring concrete monuments for a permanent reference monument, or a PRM. Several of the agency representatives at the meeting chimed it that their respective agencies had adopted a concrete monument requirement as part of their code. One question posed was: Does it have to be a 4" x 4" square monument, or would a 4" round monument suffice?

Another issue that was brought forward was the lack of a definition of a Property Information Report. Currently in 177 there is no definition of a PIR. Several people argued that a definition of PIR is needed and what one must include to be considered valid. Each month I have been asking for contact info to keep government and professional surveyors abreast of information related to 177. I hope to send out an email to government surveyors to keep everyone up to date on all feedback, including any comments and suggestions. Another

“This is to update language that needs to be clarified and to update platting standards to where they need to be. We’re not saying major changes are necessary - I don’t think a great deal of it needs to be changed. But there is a need to update, clarify, and further protect the public.”

meeting will be held in the near future in Central Florida, but other meetings will need to be held in North and South Florida.

Let me be clear, nothing has been revised yet; this is to get the ball moving to do so. This is to update language that needs to be clarified and to update platting standards to where they need to be. We’re not saying major changes are necessary - I don’t think a great deal of it needs to be changed. But there is a need to update, clarify, and further protect the public. Platting of lands has been used for many things it should not be. Black’s Law Dictionary 10th Edition defines a **plat** as “1. A small piece of land set apart for some special purpose; PLOT (1.) 2. A map or plan of delineated or partitioned ground; esp.: a map describing a piece of

land and its features, such as boundaries, lots, roads, and easements; PLAT MAP. Underlined is the purpose of a plat – it is not to denote government regulatory data or other always-changing land-use jargon! The purpose is to show the property and what encumbers it, plain and simple. At least, that is my thought on the matter!

Have a great month and hopefully I will hear from many of you, and maybe even see a number of you at the FSMS Conference in July! Until next month my friends!

You can reach Richard at
Richard.Allen@cityoforlando.net or 407.246.2788

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Issue 15, April 2019

NSRS Modernization News

For all issues of **NSRS Modernization News**, visit:
geodesy.noaa.gov/datums/newdatums/TrackOurProgress.shtml

Geospatial Summit 2019

The Geospatial Summit on NSRS Modernization will take place May 6-7, 2019 in Silver Spring, MD. Mark your calendars and check the [2019 NGS Geospatial Summit](#) page for more information when it becomes available.

Blueprint for 2022, Part 3

Blueprint for 2022, Part 3: Working in the Modernized NSRS has just been released! Find it on the NGS web-site at: https://geodesy.noaa.gov/PUBS_LIB/NOAA_TR_NOS_NGS_0067.pdf

What Will "2022" Entail?

NGS is working on a Technical Memorandum which outlines every product and service which is currently slated for the 2022 roll-out of the NSRS Modernization, as well as a status report on each project related to those products and services. Look for this TM later this year.

Contingency Plans

All projects for the NSRS Modernization are currently on track (though some just barely.) However, a number of resource difficulties have disrupted things significantly enough that NGS is working on contingency plans should any projects for the NSRS modernization not be completed by the end of 2022. Foremost among these concerns are delays caused by three government shutdowns last year. For now, 2022 remains the target!

Progress in Ongoing Projects

There are currently 18 ongoing projects directly related to NSRS modernization around NGS. Here are highlights from a select few:

- **GRAV-D**

Project Manager: Jeffery Johnson

GRAV-D reached an important milestone, collecting 75% of our target area by the end of March 2019. The survey that pushed GRAV-D over 75% was in Hawaii! GRAV-D has begun data collection in Hawaii and American Samoa. At this point we are about 58% done with Hawaii and about 40% done with American Samoa. We hope to return to Hawaii and complete data collection there in May-June of this year. American Samoa and Guam are likely to be completed in 2021 or 2022.

- **State Plane Coordinates**

Project Manager: Dr. Michael Dennis

NGS has finalized SPCS2022 Policy and Procedures, based largely on public comments received in response to an April 2018 Federal Register Notice. The official release, delayed due to government shutdowns, is expected this month (April 2019). Fillable forms included with the release will enable stakeholders to easily make requests and proposals regarding their state, and to submit their own designs for SPCS2022 zones. The policy, procedures, and forms will be available through the [SPCS home page](#).



**GRAV-D progress last quarter: up 3.0% to 75.8%
Ahead of Schedule!**

Recently: Hawaii, American Samoa, Idaho





FLORIDA SURVEYING & MAPPING SOCIETY

"The Association for Geospatial Professionals"

Greeting to my fellow Geospatial Professionals,

As many of you are aware, the National Geodetic Survey (NGS) is creating a new datum that is effective in 2022. As part of this process, NGS has asked the Stakeholders in each state to come to a consensus on the design of their individual State Plane Coordinate Zones and advise NGS on what they want.

The Surveying & Mapping Council, a Standing Committee of FSMS, was the perfect vehicle to address this request, as many of the members represent a Stakeholder as defined by NGS. The members of the Committee are:

Randy Tompkins (Chair and FSMS Board Member)
Dianne Collins (FSMS President)
Jack Breed (FSMS Legal Committee Chair)
Bon Dewitt (UF Geomatics)
Ronnie Figueroa (NSPS State Director),
Jim Owens (SWFWMD)
Brett Wood (FDOT State Surveyor)
Denis Riordan (NGS Advisor)
Ekaterina Fitos (ASPRS Representative and State Geospatial Information Officer)
Matt Kalus (Florida Assoc. of Cadastral Mappers)
Lou Driber (USGS Representative)
Richard Malloy (FDEP Bureau of Surveying & Mapping Chief)
Nick Campanile (BPSM Appointee)
John Clyatt (FSMS Legislative Committee Chair)
Richard Allen (Surveyors in Government)

As you can see, these 15 members represent a wide and diverse array of the Geospatial Community from across Florida!

If you would like to have a presentation on the 2022 Datum for your organization, please feel free to email me at randytompkins1@outlook.com.

The letter to NGS on the following page shows the new zones selected by the Council.

Sincerely,

Randy Tompkins, PSM
Chair (Florida Surveying & Mapping Council)
Director (District 2, Florida Surveying & Mapping Society)

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Florida Surveying and Mapping Society

February 22, 2019

Michael Dennis
SPCS2022 Project Manager
NOAA/NOS/National Geodetic Survey
1315 East-West Hwy
Rm. 8402 N/NGS4
Silver Spring, MD 20910

Via email: ngs.spcs@noaa.gov

RE: State of Florida – 2022 State Plane Coordinate System Design

Mr. Dennis:

The Florida Surveying and Mapping Council together with the Florida Stakeholders have come together in agreement on how we would like the 2022 State Plane Coordinate System designed for our state.

The Florida Surveying and Mapping Council (FSMC) has been a standing committee of the Florida Surveying and Mapping Society (FSMS) for more than 25 years. Its members include, but are not limited to, many of the Stakeholders required by the National Geodetic Survey as outlined in the Draft SPCS2022 Procedures.

The FSMC has reached out to and brought together all of the required stakeholders and their representatives in Florida. We have held multiple meetings with presentations across the State over the past eight months addressing the changes to the State Plane Coordinate System. We have provided various options to the changes at these meetings and have asked for and received input from each group to gain a consensus of opinion as to which direction would meet the future needs of the State.

An overall majority of the FSMC and the Stakeholders have agreed that the current SPCS83 Zones does not meet Florida's future needs for the 2022 Datum. The following three (3) Exhibits reflect the current SPCS83 Zones (Exhibit 'A') and the two (2) recommended changes (Exhibit 'B' and 'C') as agreed to by the Stakeholders of Florida.

The Exhibits reflected herein and the distortions delineated thereon were produced by the National Geodetic Survey from input by the FSMC and the Florida Stakeholders and were relied upon for this recommendation.

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Exhibit 'A'

Showing Existing Florida SPCS 83
East, West, & North Zones

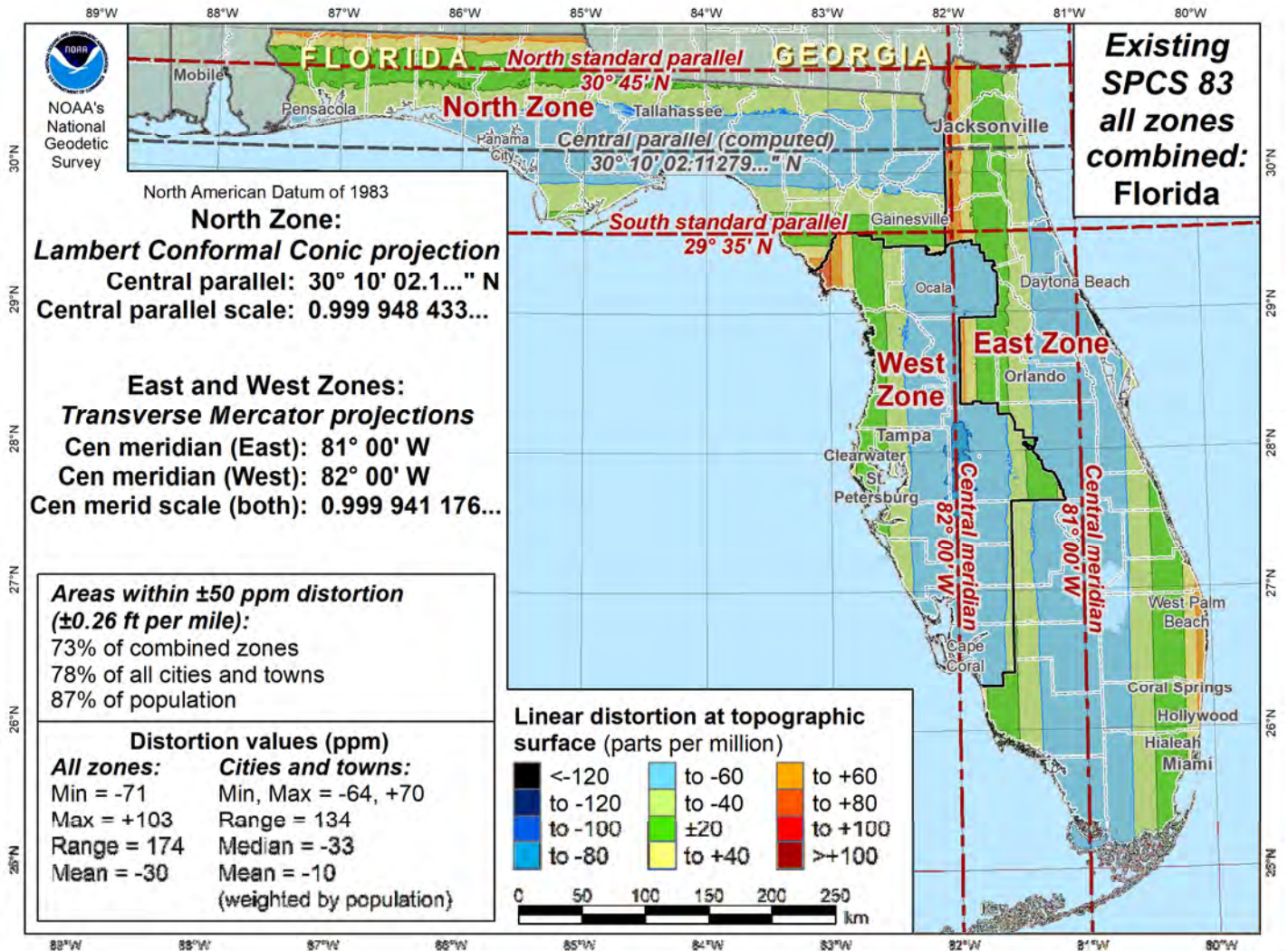


Exhibit 'B'

Showing Proposed Florida SPCS 2022 – (East, Central, & West Zones)

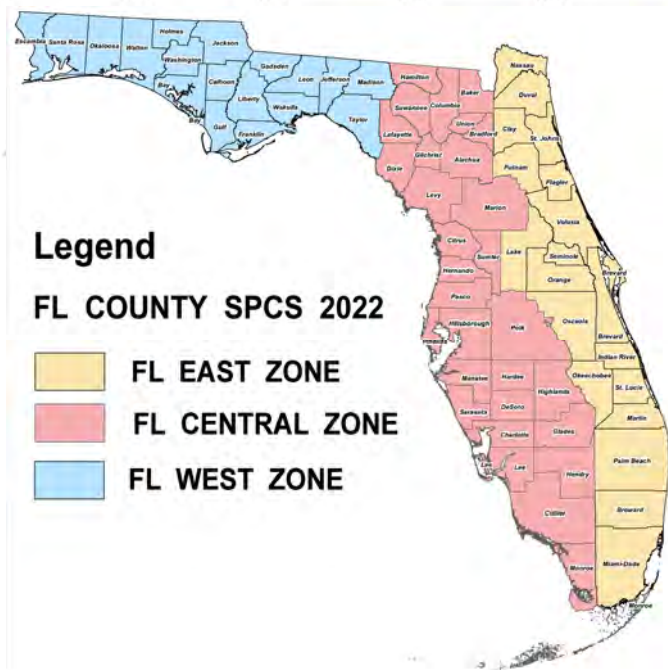
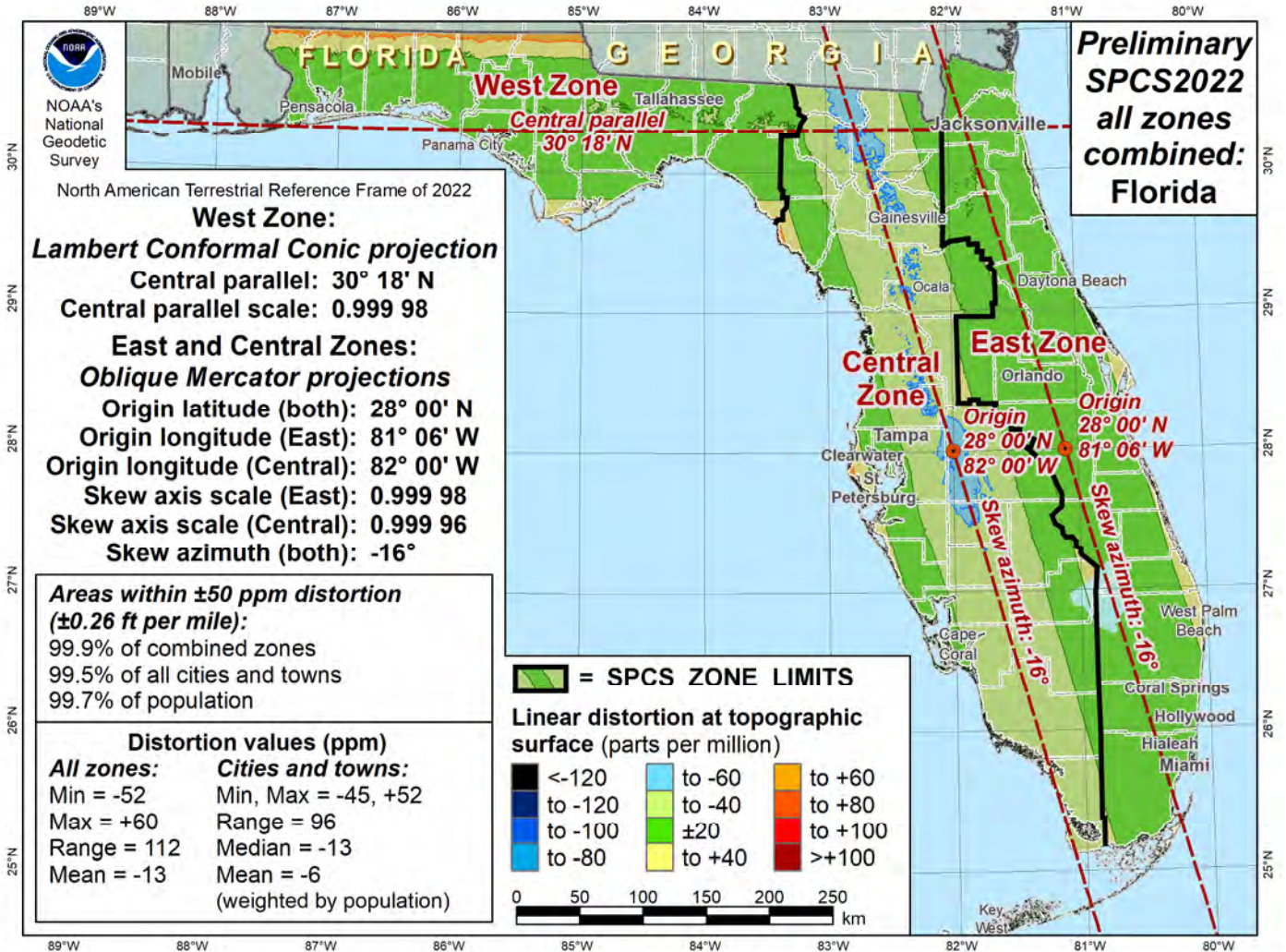
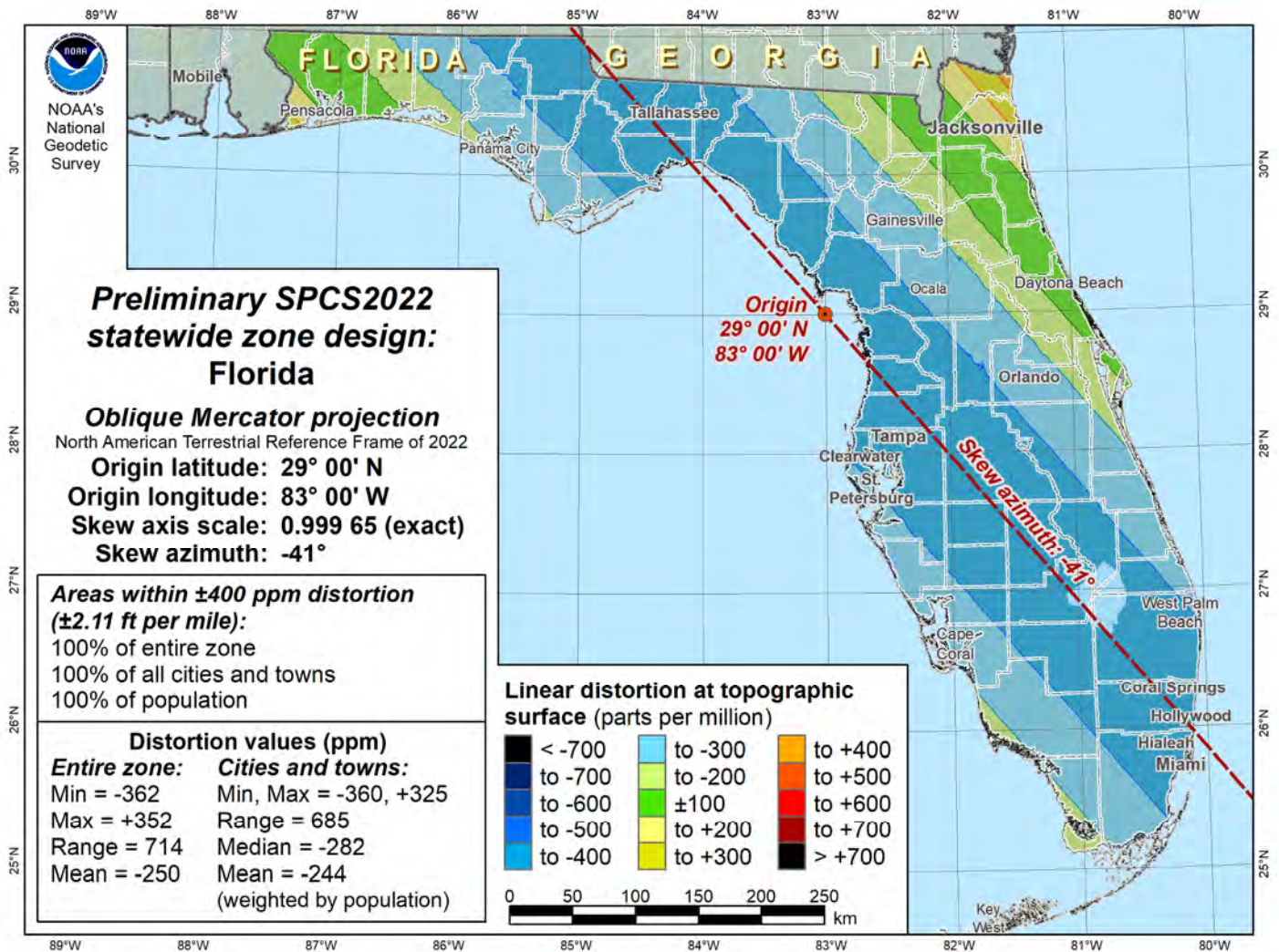


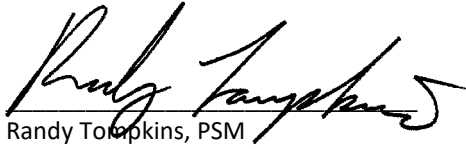
Exhibit 'C'

Showing Proposed Florida SPCS 2022 Statewide Zone



We, the Stakeholders of Florida are open to any, and all, comments from the National Geodetic Survey.

Respectfully Submitted by,



Randy Tompkins, PSM
Chairman – Florida Surveying & Mapping Council

Cc: Dianne Collins, PSM. President – Florida Surveying & Mapping Society
Brett Wood, PSM, State Surveyor – Florida Department of Transportation
Ekaterina Fitos, GISP, Florida Geographic Information Officer
Richard Malloy, PSM, Chief, FDEP Bureau of Surveying & Mapping, State Cadastral Surveyor
Nicholas Campanile, PSM, Florida Board of Professional Surveyors & Mappers, (Regulatory and Licensing Board)
Ronnie Figueroa, PSM, Director (Florida) – National Society Professional Surveyors (NSPS)
Dr. Bon Dewitt, Ph.D., PSM, Geomatics Program Director, University of Florida
Richard Allen, PSM, Surveyor, City of Orlando, Representative of Surveyors in Local Governments
Matthew Kalus, Florida Association of Cadastral Mappers
Jim Owen, PSM, Southwest Florida Water Management District Representative





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Scientists Predict New Solar Cycle

By Joe Kunches
April 11, 2019

This article originally appeared in The Washington Post.

The latest 11-year cycle of the sun is almost over and scientists have just released predictions for the next one.

Based on the number of sunspots which formed, scientists considered the last solar cycle, number 24, “weak.” They predict that the upcoming cycle, number 25, will be a little more intense, but still in the weak category.

This consensus forecast was made public at the annual Space Weather Workshop last week, hosted by the National Oceanic and Atmospheric Administration’s Space Weather Prediction Center.

Lisa Upton, a solar physicist with Space Systems Research Corporation and co-chair of the panel issuing predictions, said cycle 25 should begin between mid-2019 and late 2020 and that it should reach

its maximum between 2023 and 2026 when about 95 and 130 sunspots are projected. Average is between 140 and 220 sunspots.

Cycle 24 peaked in April 2014 with 82 sunspots. Should Cycle 25 actually reach the predicted values, that would stem the trend of the past few cycles that showed a continued decline.

The continued decline was worrisome to some space weather scientists in that it suggested a return to a lengthy “solar drought,” reminiscent of the Maunder Minimum period of 1645-1715. Records show the Sun was essentially spotless for this lengthy period, coinciding with the “Little Ice Age” in Europe and tickling the interest of scientists to wonder if there is a cause and effect relationship between solar behavior and earth’s climate.

The prediction panel, in future work, will attempt to better understand the strength, timing, and location of sunspot formation across the sun’s hemispheres and the likelihood of solar flares and coronal mass ejections.

These are blasts of charged particles off the sun which can disrupt satellite and radio communications and even power grids in extreme cases.

Frank Hill, a physicist at the National Solar Observatory, detected measurements heralding the start of Cycle 25 about one year ago. The small sample of data available hampers the confidence of prediction, but he estimates Cycle 25 will commence around October 2019.

The prediction of solar cycle behavior is very difficult. “We are not really ‘there’ on the underlying physics of the problem. It’s a bit like pin the tail on the donkey,” said Scott McIntosh, a solar physicist at the National Center for Atmospheric Research.

Solar scientists are most concerned about a major eruption from the sun which could cause substantial damage to electronic communication systems and power grids. Past history suggests such extreme events are possible.

During the “Carrington event” in 1859, for example, the northern lights were seen as far south as Cuba and Hawaii according to historical accounts. The solar eruption “caused global telegraph lines to spark, setting fire to some telegraph offices,” NASA wrote. A similar event today would have the potential to cause serious damage to satellite communications and power grids.

During weak cycles, such events

are less likely but still possible.

“While we are not predicting a particularly active Solar Cycle 25, violent eruptions from the sun can occur at any time,” said Doug Biesecker, a solar physicist at NOAA’s Space Weather Prediction Center, in a press release.

In any cycle, strong or weak, the strongest solar storms are most likely at the solar maximum, which is projected between 2023 and 2026 in cycle 25. Pete Riley, a scientist with Predic-

tive Science Inc. said at the recent workshop that the probability of a “Carrington Event” during solar minimum is about 1.4 percent, whereas during solar maximum it balloons to about 28 percent.

The Cycle 25 prediction panel will continue its work and periodically update its forecasts.

Capital Weather Gang’s Jason Samenow contributed to this report.

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The Forbes Purchase: A Surveyor's Dilemma

By Ron Maddox, P.L.S.
Florida Engineering Services, Inc.
Tallahassee

I. INTRODUCTION

The United States went through tremendous growth in the early 1800's. After gaining independence, the power of the nation was evident when territories were acquired and annexed to the public lands. Florida became a territorial part of the U.S. in 1821, was granted statehood in 1845, and has been an area of much land development speculation ever since.

At the time of acquisition from Spain, there were already parcels of grants and claims with which the government had to deal. Most of these lands were expeditiously given favorable outcomes of ownership to the grantees. However, one area remains unprecedented in the way the grant was originated, handled by the courts and subsequently surveyed by private and governmental surveyors—not only in the state, but also the entire nation. This area in the northwest Florida panhandle is commonly known as the Forbes Purchase.

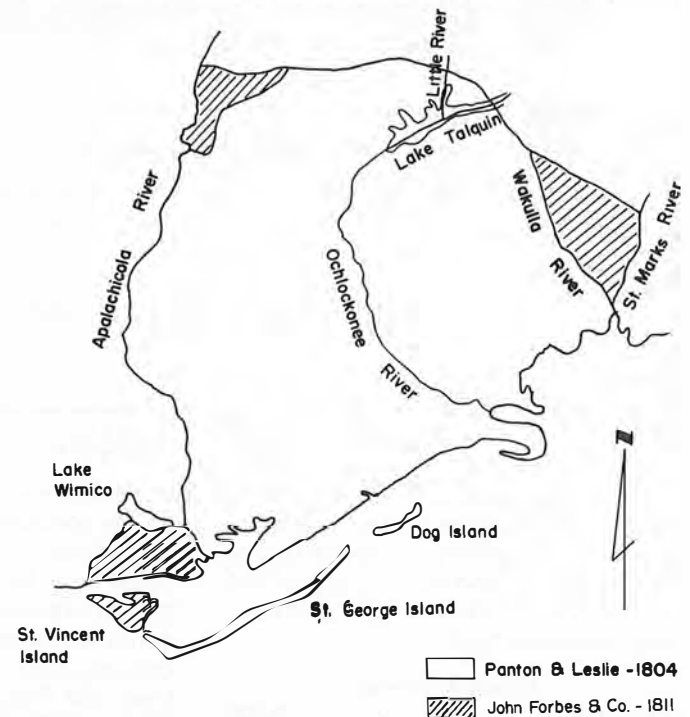
Beginning as an Indian grant to a trading company to pay back debts, it remained in controversy for many years and resulted in the only Supreme Court case in which the rights of the American Indians were recognized in giving lands to private owners. This is a historical study, from a surveyor's point of view, of the events of this transaction, the surveys within the purchase and the ultimate problems it presents to today's surveyor in a large section of Florida.

II. THE BEGINNINGS

In the year 1776 a company begun by three men came to Florida. These men—William Panton, Thomas Forbes, and John Leslie—ran a trading firm called Panton, Leslie and Company, primarily in the southern states. Being British, it became difficult to cope with the revolutionaries, and finally they were forced into then British-controlled Florida. Business boomed at this time because the northern ports were slowed greatly due to the war, and soon the company was the chief trader in the area (mainly north Florida).⁷ But shortly after America gained its independence from Britain, Florida was returned to Spain in exchange for the Bahamas. Because Spain was involved in other major conflicts, it didn't have the military force to control the Indian nations. The trading company was given special privileges to serve the area, and this also helped business.

The expansion of the company had soon spread over much of the Southeast, and with the new customers came debts (it was the company's policy to extend credit to the Indians).⁴

Then in 1792, an Indian sympathizer, William Augustus Bowles, raided one of the firm's stores near St. Marks. It was then thought necessary to collect the debts as soon as possible.⁵ Payment in cash or furs was first attempted with little or no success. The Spanish government then recommended that they try to gain title to Indian lands within the United States. After refusal from the U.S., Spain agreed to allow the Indians



(who were of the Creek and Seminole nations) to cede lands which were recognized as theirs by the Spanish authorities as compensation for the debts.

Thus, in 1804, a large tract of land located between the St. Marks and Apalachicola Rivers and extending far into the panhandle, was ceded by the Creeks and Seminoles to Panton, Leslie and Company. However, the Company did not have full right to sell any of the land without first consulting the Spanish government.³

Not long after the cession, the Company was changed to John Forbes and Company, named after Thomas Forbes' brother who joined and eventually took control of the business. It was hoped that the Indians would want their land back and pay cash for it, but this was not the case. The debts then began to climb again; and, in 1811, three other tracts which bounded on the original cession were also transferred to John Forbes and Company.⁷ At the same time, other lands were granted to the individuals of the Company. The most noteworthy of these was a tract, approximately two miles wide and eight miles long on the Apalachicola River, given to John Forbes; it is today known as Forbes Island. The total area of land given to the Company from both grants amounted to almost 1.5 million acres (see Figure 1).⁶

After the War of 1812, the power of the United States greatly concerned Spain, and attempts to sell the Purchase were stepped up. A raid by Andrew Jackson in 1818, to quell violence that had spread to Florida by runaway slaves and outlaws, turned out to be the final straw.³ Negotiations were then made by the U.S. and Spanish authorities in 1819 (effective in 1821) to transfer all of Florida's lands to the United States. This same year the Company finally found a buyer in Colin Mitchel—a Spanish merchant who lived in Cuba. Mitchel bought the Purchase for \$135,000—roughly 11 acres for a dollar.⁷

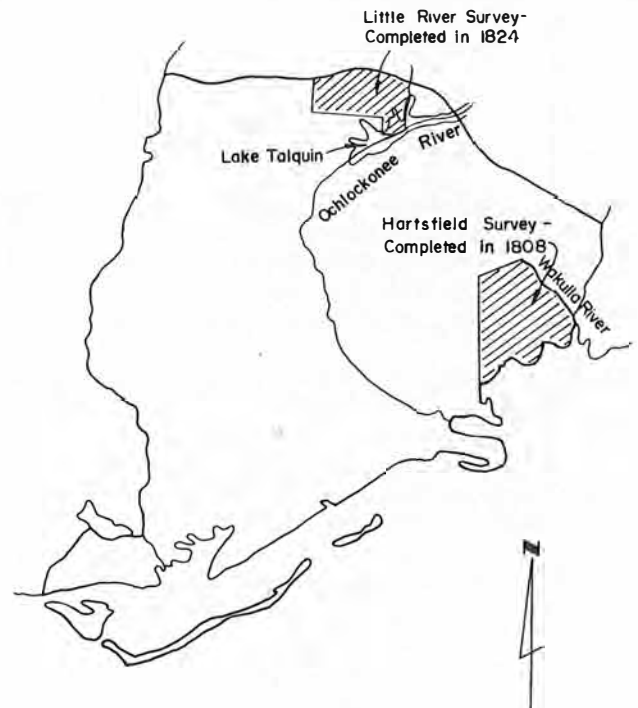
III. THE TITLE QUESTION

Florida actually became a part of the U.S. by the treaty signed by Spain in 1821, and clear title to Mitchel was withheld until a special commission reviewed the case. The commission's purpose was to give recommendations to Congress on the claims within Florida. Because the title was clouded during this period, Mitchel's attempts to sell the land were in vain. He also became a victim of financial woes as debts began accruing to his creditors, but clear title was still not granted.

The commission submitted a report to Congress on the lands in 1828, but no action was taken. Instead, it was ruled that each claimant had to resort to the State's courts for review on an individual basis. The clear title to the claimants came in 1830, but this was appealed to the U.S. Supreme Court. Finally, after many delays in gathering evidence, clear title was assigned to Colin Mitchel and his creditors in 1835.⁷

One exception made to the decision was the tract within the Purchase between the St. Marks and Wakulla Rivers, which was one of the three additions ceded in 1811. Fort St. Marks is located there and it was thought that since no clear boundaries existed adjacent to the walls of the Fort (except for the two rivers and northern boundary of the Purchase), it was the intent of the Spanish government to cede this entire portion to the U.S.

In 1838, Mitchel and others appealed on the grounds that Spanish forts did indeed have standardized boundary locations adjacent to their forts, and this resulted in a much smaller area than previously thought by the courts. Since the Fort was located on the far southerly tip of this tract, at the intersection of the two rivers, it was established that these rivers would be the southerly boundary of the public lands. The northerly bound-



—FIGURE 2—
LOCATIONS OF HARTSFIELD AND
LITTLE RIVER SURVEYS

ary was shown in a complicated description which was roughly 3/4 mile to the north.⁶

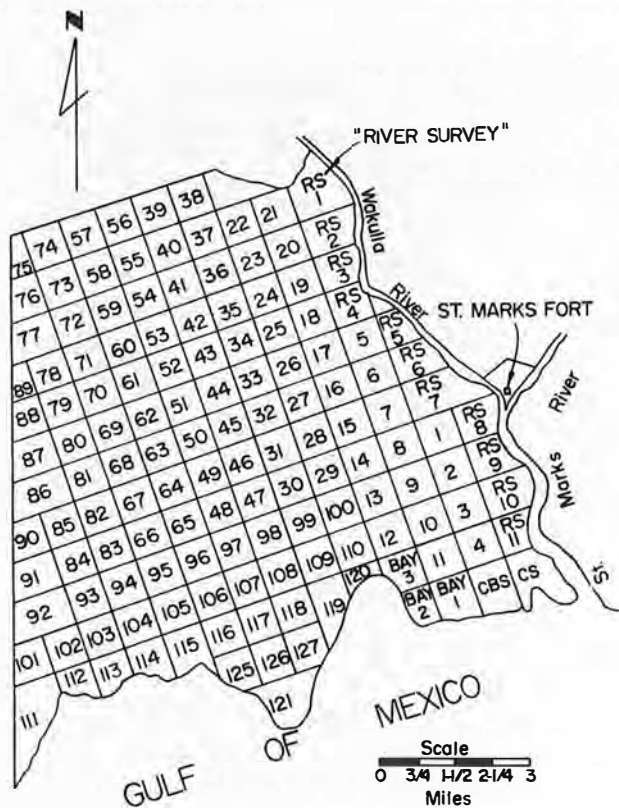
IV. THE DOWNFALL

When Mitchel and others gained control in 1835 (even though many questions still existed in the minds of many people concerning clear title),⁷ they decided to pool their resources to sell the lands. The Apalachicola Land Company was then founded and offices were set up in New York as plans were made to develop new towns and subdivisions within the Purchase.²

However, there was not a big demand for Florida lands at this time. Apalachicola was the best location for development and squatters were forced to either leave, or pay extremely high prices for the land they improved before the land company gained clear title.⁴ Optimism grew as lots were divided and sold, but it was not enough. Financial problems, along with Indian wars, slowed sales tremendously in the early 1840's. Sales continued to drop, and by the mid-1850's debts again became the downfall of the Purchase. In 1858, a court order placed the lands for sale at extremely low prices—the money going to the creditors of the Apalachicola Land Company.⁷

V. SURVEYS WITHIN THE PURCHASE

There were many original surveys made within the Purchase from the turn of the 19th Century to the mid-1800's. Most of these were resource assessment surveys designed to analyze the economic potential of the area, and will not be discussed in much detail. Subdividing the land was a major concern for the successive firms, and an efficient method for placing the property on the market was needed.



— FIGURE 3 —
THE HARTSFIELD SURVEY

The Hartsfield Survey

Probably the first comprehensive surveys were made in 1807 for John Forbes and Company by a man from South Carolina, Asa Hartsfield. First, he re-ran the northern boundary marked by the Indians in 1804. Then his duties were to locate the areas which had the best agricultural lands. He identified only two tracts that were acceptable for farming (see Figure 2). One was located in the far southeast corner of the Purchase, bounding on the Gulf of Mexico to the south and the west bank of the Wakulla River to the east. After running the north and west lines, he went about laying off 360-acre tracts, 3/4 mile on each side.

What is so unusual about this survey was not the lengths of the lot lines, which were not consistent with the one-mile section lines the government surveyors were utilizing, but the bearings that he used. Instead of the typical North-South, East-West directions, he opted for bearings which ran 72-1/2 degrees Northeast and Southwest, and 17-1/2 degrees Southeast and Northwest. At least, that is what the only available notes show, and, along with local belief, is taken to be what was intended. The unusual directions are thought to have been set up so that the lot lines running to the Gulf of Mexico and Wakulla River were perpendicular to these water bodies.⁷

The survey took on two phases. The first was called the "River Survey," in which the first tier of lots were laid out along the Wakulla River. Then the remainder was subdivided in the second phase running to the western boundary line (a

north-south line). The total number of lots came to 145, and the area totaled over 37,000 acres (see Figure 3). He imagined that this was the most fertile tract, and at this time there was much land speculation.⁷

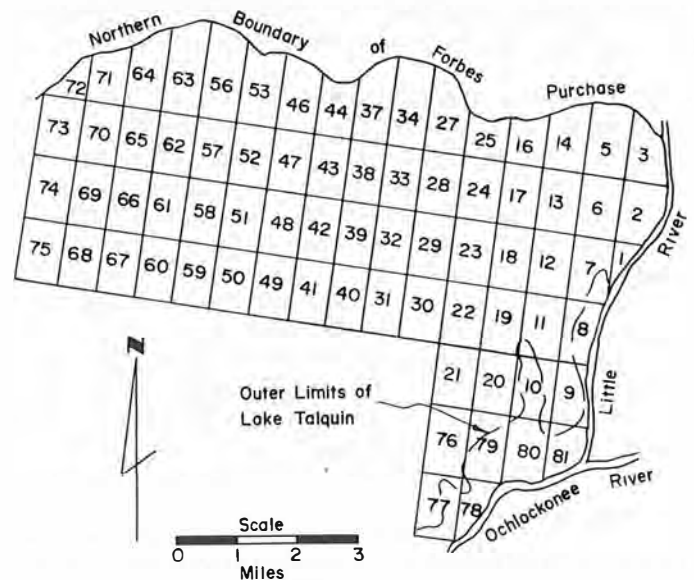
John Forbes and Company was determined to make money on this venture and it is one of the first attempts to develop Florida on a large scale. This area of the State looks unique on any map showing the surrounding townships, because this survey was left unscathed by the sectional surveys which came later. The deviating bearings and smaller lot sizes stand out prominently.

The Little River Survey

This unusual survey was done in 1821 by two surveyors named Brown and McBride, and was the other tract that Asa Hartsfield had marked as good, fertile land in 1807. It was bounded on the east by the Little River (in Gadsden County, a few miles west of Tallahassee), and to the north by the northern boundary of the Purchase. This area was first subdivided into lots 100 chains east-west, and 80 chains north-south. The lines were run on magnetic bearings, and at this time resulted in deviating from true north by 7-1/2 degrees to the east. Since no notes exist for this survey, one must rely on locally accepted facts as to the distances and bearings of the lot lines.

This area was further subdivided in 1824 by action of the courts when Colin Mitchel applied for partition of the Purchase in 1823. Daniel McNeil, the county surveyor, performed this survey. The existing lots of 800 acres were cut in half, using parallel lines with Brown and McBride's lots. Also, the entire Little River Survey was extended to the south and west. The lots now measured 80 chains north-south, and 50 chains east-west, resulting in 400 acres per lot (see Figure 4). The tract totaled 28,460 acres of loamy soils, hills and hardwoods and was rich in minerals. There is a plat of this survey on record showing roads, structures, lot lines, water bodies (which are abundant), and other features of the terrain.

Another extension was made of the Little River Survey by a man named McDonald in 1839. This was called the "Bear Creek Extension," and entailed adding lots to the Ochlockonee River which was located south approximately two miles.



— FIGURE 4 —
THE LITTLE RIVER SURVEY

These new lots never materialized into the legal records and were eventually overrun by the sectional system in later years. It is rather unfortunate because this is the only section of the Little River, or Hartsfield, Surveys in which the original field notes were maintained and are presently available.⁸

The Sectionalized Lands

At the same time the Little River Survey was being completed by McNeil, the United States began its sectional survey of the Florida lands. After establishing the initial point in Tallahassee in 1824, the Base Line was run east and west, running into the Purchase to the west. Township and range lines were then extended into the Purchase to some extent, covering roughly half of the lands before work was stopped in 1826 (see Figure 5). However, only mile and half-mile posts were set at this time on the township boundaries and none were further subdivided by the government. No surveys were done by the claimants, Mitchel and others, until the outcome of the ownership question was given. Then, in 1835, at the order of the court of the U.S. vs. Colin Mitchel, et al, a boundary survey was to be done, tying the Purchase as given by the court to the Township-Range System that was by now almost complete in northwest Florida.

Charles Goldsborough was directed by Robert Butler to complete the work within four months. Goldsborough delayed the project well over a year, and was finally paid for his work in 1837. He apparently was not well, and the physical characteristics of the Purchase (mostly swamp), hindered him greatly.⁷

Butler then instructed Robert Ker to do the same in 1839. First, the entire boundary was run as a tremendous closed traverse, and the three other contiguous grants given in 1811 were run also, along with the islands off the coast which were given in the first cession. This survey is the first complete boundary survey of which notes are presently on record. He then retraced the original survey, township and range lines which the government did complete on the exterior of the Purchase boundary, and tied them together with the boundary. A large plat shows each line that was tied (and the distance in chains and links) to the Forbes Purchase Boundary.

Also in 1839, the Apalachicola Land Company instructed W. R. Hopkins to subdivide a portion east of the Ochlockonee River. He utilized the Township-Range System, using the townships already established by the government surveyors in the mid-1820's and extended the townships to the south. He also performed a re-survey of the Hartsfield Survey and tied the boundary of it to the Township-Range System to the north and west. Actually, the westerly boundary became the first range line west of the Prime Meridian, even though there was some overlapping. This is what is shown today. Development in this area was thought to be the most productive, and Hopkins reported on the feasibility of the Ochlockonee Bay as a major port. This, however, never materialized.⁷

Beginning in 1854, surveyors who were active in establishing the subdivisions of townships for the government were called in to finish the sectional survey within the Purchase—largely to the west of the Ochlockonee River. During the years after the 1840's, little development went on in the Purchase—legal questions were still an issue as to the court decision of giving clear title to the Land Company. Little reasoning, other than wanting an inventory of the lands for legal purposes upon disintegration of the Company, would explain why this was done at this time. It would seem logical that the U.S. Government would have ordered this work to be done, but no state contracts can be found; and if this were the case, the field

notes would not have disappeared (almost all of these notes are missing). In any case, these surveys were completed in 1857, and thus the entire Forbes Purchase subdivision was finally completed.

VI. PROBLEMS TODAY

Today's surveyors, trying to establish old original lines within the Forbes Purchase, are confronted with many problems. The most frustrating already has been mentioned—locating the original field notes. Somewhere along the line, many notes were either taken, lost or destroyed for unknown reasons.

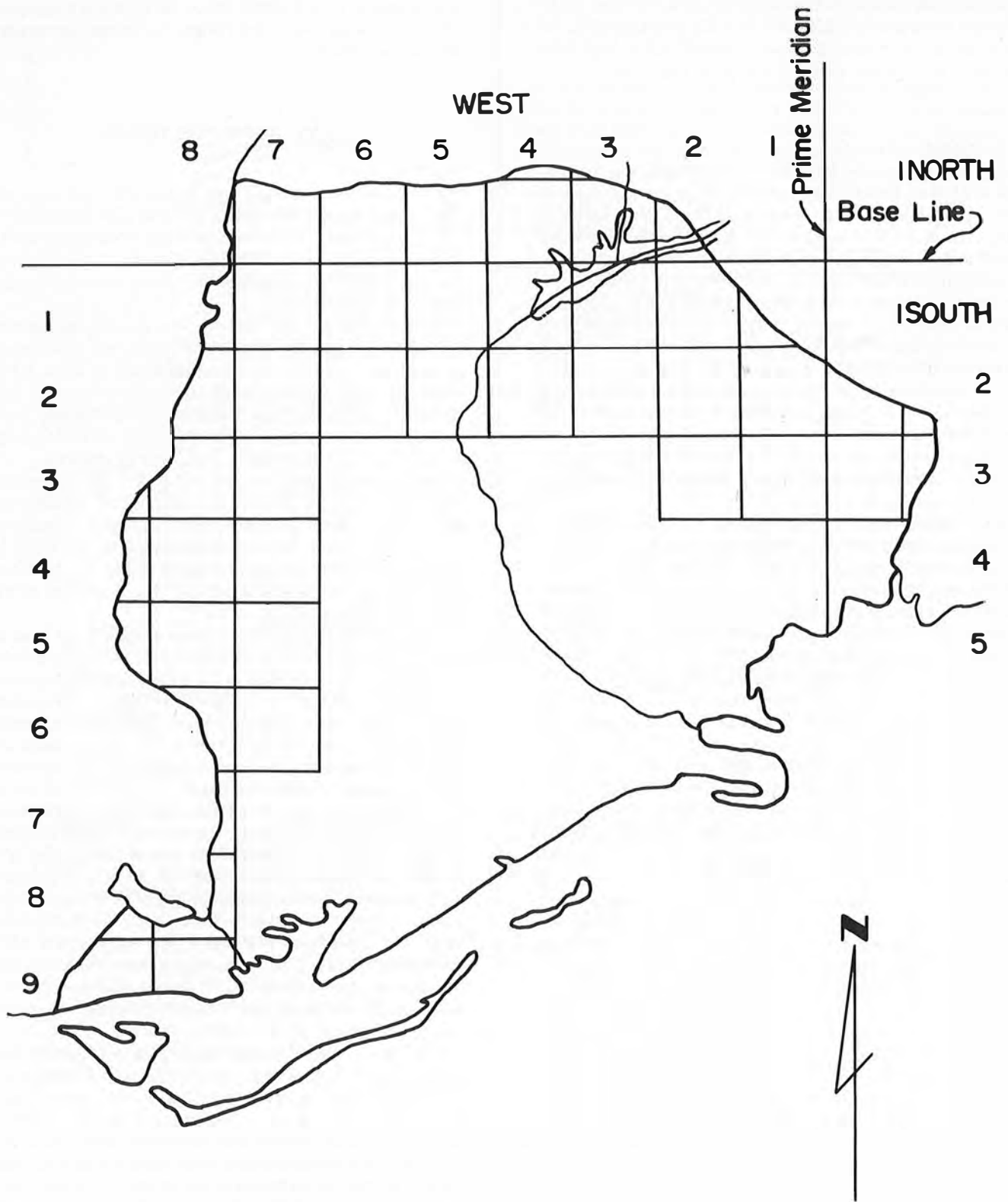
Hopkins' notes of the Hartsfield Survey are available, but do not reference any corners. These notes may be more or less ignored as all lots are described as perfect squares, 60 chains per side—no exception (except for the fractional lots). This implies that his survey was primarily to show where the hammocks and other physical characteristics are located, and not to perform an "independent" resurvey of the lots.

There is absolutely nothing left of the Little River Survey notes. Surveyors in the areas of these two subdivisions are satisfied with location more or less contingent on possession. In the Little River Survey, the lots are crisscrossed by old fenced possession lines which were staked by squatters who held onto the lands, and later surveyed by private surveyors, tying into lot lines and corners.

What is left of these two surveys are plats—at least one of the Little River Survey, and at least two of the Hartsfield Survey. Again, there is little or no help from these documents because of the lack of measurements. The Little River plat does visually show where certain line trees are located, and where some trees appear at lot corners, but that is about all—no measurements other than acreages are shown. The Hartsfield plats are useless except for the general location of the lots by number, and location of the sinks and hammocks. Acreages are also shown on both plats. The two plats are actually contradictory as to divisions of certain lots and acreages. It is assumed that none of these Hartsfield plats are originals, since both show the sketched boundaries of the St. Marks Fort (just across the Wakulla River), which was not established until 1835. The Little River plat is probably authentic, as McNeil's instructions and signature appear at the bottom. It is thought that lighter-wood stakes in both surveys were set, but there is even speculation as to this. Fences are the primary evidence in most surveys within these two areas.

As for the sectionalized surveys done in 1839 and the mid-1850's, some notes still exist, but most do not. Plats are available for most of the lands, but they are not very detailed. All lines in which the government surveyed in 1824-26 in establishing the State system are available. Also, these records (including the Hartsfield and Little River notes and plats) are located at the Florida Department of Natural Resources, Division of State Lands, Title Section, in Tallahassee. All notes, except for the government surveys, are located in two volumes of books and on microfilm. The government survey notes are part of the public land survey notes and are well-documented, indexed and easy to follow.

The main problem here is that less than half of the township boundaries were done (none of the interior sections) until the abandonment of the project within the Purchase in 1826. When the private surveys were initiated in 1839, they used the same methods and note-keeping, but care was not taken in storing the notes and making them available to the public. The



— FIGURE 5 —
 TOWNSHIP AND RANGE LINES
 SURVEYED PARTIALLY BY GOVERN-
 MENT SURVEYORS IN 1824-26

only notes available as to the subdivision of townships are of lands to the east of the Ochlockonee River, but not all. These were done by Hopkins, in 1839, and Randolph and Hunter around 1854-55. The notes to the west of the river are not available. There is another large map available at Florida State University's Strozier Library which shows the Purchase boundary line and the subdivisions within it. The Hartsfield Survey, Little River Survey, and completed townships and sections are included, along with the surrounding government sections. Again, no measurements are given as it is a visual representation of the Purchase.⁹

This is a nightmarish area for surveyors. If the area is along a township or range line which was done by the Government, certain sections may be set back up. Even here, the widespread problems of locating old section and quarter section corners are still present. There are few available additional records except for a few private and Forest Service surveys, and in many cases, these do more harm than good.

VII. CONCLUSION

Perhaps the only relief in this region is that there are not many people who live here and consequently there is not a large demand for surveys. The slow times that the Apalachicola Land Company went through still lingers today. One of the reasons for slow growth is that paper companies own a large portion of the Purchase. The Forest Service also maintains a fairly sizeable portion. Another reason is that a lot of the area is in swampland. This is very apparent on small scale topo maps. A third reason is the local government's repression of almost all kinds of development, now formulating strict regulations of lot sizes and other legal requirements for developers to follow. They definitely are not trying to attract more people to the area.

Another aspect of surveying in the area is that surveyors accept possession lines and do not have to spend as much time looking for original corners. Many of the people affected are poor, rural individuals who cannot afford such service anyway.

Still, wondering about the events of the past century goes on. Why was there so much secrecy and so little interest in perpetuating the history of the Purchase? And why wasn't care taken in saving the field notes? As surveys progress in the region, perhaps more answers will become known.

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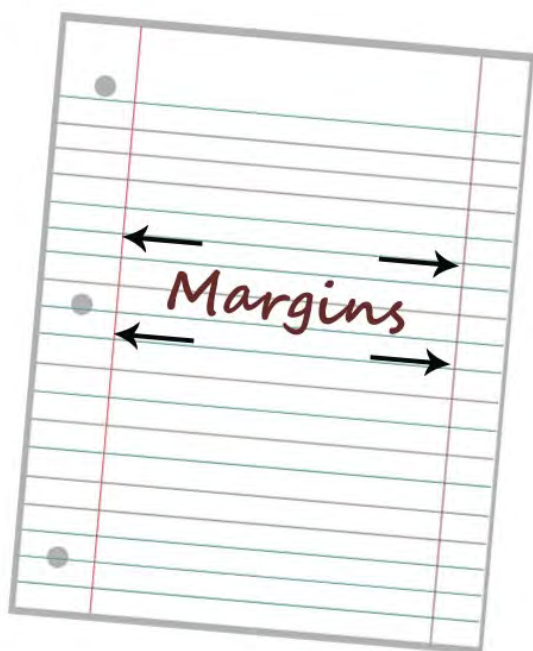
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Did YOU Ever WONDER Why?

Michael Whitling, PSM

Why are there margins on lined paper?

Have you ever asked yourself why notebook paper has margins? Also, why do the margins change when you get to college so you have more space on the page? Well, the answer to the second question is because colleges are cruel. The answer to the first question, meanwhile, is far more interesting. Many years ago, back in the days when rats would frequently take up residence in a person's home, they would chew on paper. With margins on the paper, a rat could eat the edges of the paper without ruining anyone's work or accidentally eating important information. Obviously, we don't need this feature so much anymore, but they do help protect what's written from general wear and tear that happens on the edges of notebook paper.



Why when someone is good at something is it said to be "in his wheelhouse?"

In the spring of 1959, the San Francisco Giants' Hall of Fame outfielder Orlando Cepeda was mired in a hitting slump. When a reporter asked the team's manager, Bill Rigney, what was wrong with his player, Rigney's response forever changed the way baseball broadcasters talk about the game: "It just seems he's not seeing 'em the way he used to...He's had a couple that came right into the wheelhouse -- the kind he used to knock out of sight -- and he fouled 'em off." A wheelhouse, also known as a "pilot house," is an enclosed structure on the bridge of a ship, where you can find everything needed to control and navigate the vessel, including the wheel. With a little imagination, the term seems to be applicable enough to baseball. However, the term "wheelhouse" was also used in the rail yard. When a train came to the end of the line, it had to turn around to go back the way it came; this was usually accomplished by using an enormous circular turntable that rotated the train. These turntables were often covered, or partially covered, with a building so that maintenance work on the locomotive could be carried out indoors between runs. The buildings were commonly called roundhouses, but were also known as "wheelhouses." It can be argued that the railroad "wheelhouse" is a better metaphor for the batter's power zone than the nautical wheelhouse. Picture an immense locomotive sitting on the turntable. When the turntable spins, the locomotive (the bat) swings in a powerful arc (the batter's swing) from one side of the "wheelhouse" to the other (the strike zone). By the late 1980s, "wheelhouse" was being used to mean any specific thing where a person showed especial ability.



Why do we use the expression, "fair to middling," to mean something is so-so?

You might think that middling, or "middlin,'" as it's often spoken, is just a corruption of middle. "Fair to middling", which came into use in America in the early 19th century, would then be simply a way of doubling the sense of average, ok, could be worse, etc. Essentially that's it, except that there is a more exact source for "fair and middling." In the 18th century they were grades of goods, especially cotton. "Fair to middling" cotton is an average grade of cotton, and is the type usually used for denim.

Quick Facts:

⇒ More Lincoln pennies have been issued than all the rest of the coins in the history of the world, combined.



⇒ Top five words with the most definitions: Set (430 definitions), Run (396 definitions), Go (368 definitions), Take (343 definitions), and Stand (334 definitions).

⇒ More bullets were fired in Starship Troopers than in any other movie ever made.

⇒ More than 50% of the people in the world have never made or received a telephone call.

⇒ Americans traveling in Australia should realize that the "V" for victory sign, holding up two angled fingers, is the Aussie equivalent of an American extending upward only the middle finger. Americans who are ignorant of this basic cultural difference and give the two-finger sign are creating a no-win situation.

⇒ Rats multiply so quickly that in 18 months, two rats could have over a million descendants.

⇒ The aggregate weight of the world's termites outweighs that of humans by a ratio of 10 to 1

⇒ We've all used cable or power cords of some kind and notice a big cylinder-shaped lump toward the end. Most people don't know that those are actually called chokes or ferrite cores. They are simply magnetic iron oxide that helps to prevent any high-frequency electromagnetic interference. An example of this kind of interference is when your cell phone gets too close to a speaker and you get that weird noise interrupting your call. That's why we have those big cylinders on cable cords.

⇒ There are only 18 minutes of action in the typical baseball game.



⇒ Unless you only eat wild salmon, then the fish you buy has likely been dyed pink. That's because farm-raised salmon consume a different diet than their ocean-

dwelling counterparts and are naturally white instead of bluish. In order to make them the expected color, a chemical is added to change their hue. "If we didn't do it, customers wouldn't buy it," fish farmer Don Read told Time. "Consumers buy what they're familiar with. They won't go into the store to buy white salmon."

⇒ Rats and horses can't vomit.

⇒ It's no secret that it can get mighty cold in some parts of Canada, but that doesn't make it any more believable that it once got so chilly that it was as cold as Mars. The lowest recorded temperature in the country's history happened on February 3, 1947, at Snag Airport, approximately 18 miles east of the Alaska-Yukon border, when it dropped to a bone-chilling -81.4° Fahrenheit, which is one degree colder than the -80° Fahrenheit average temperature of Mars, according to NASA. If you were wondering, the average temperature on Earth is 57° Fahrenheit.

⇒ If you've ever been pooped on by a bird, then you can, unfortunately, attest to the fact that they do their business like every other animal. However, what they don't do is pee. According to the National Audubon Society, "unlike mammals, [birds] don't produce urine. Instead, they excrete nitrogenous wastes in the form of uric acid, which emerges as a white paste." The animals also don't have a urethra, so that paste leaves out their bums.

⇒ Condors lay only one egg every two years.

⇒ Holland is a lovely part of the world with a long and proud history—but it's not a country. Even though many people think it is a nation unto itself, and despite the fact that it's often used to refer to the country where it's located, Holland is, in fact, a region comprised of two of the 12 total provinces in the Netherlands.



⇒ Of the 35,046 German soldiers, sailors, airmen, and potential insurgents that were incarcerated in Canada during World War II, a whopping 6,000 didn't want to leave after the war ended in 1945, according to Canada's military history magazine. At these Canadian camps, prisoners were given paying jobs and were able to enjoy handball, boxing, wrestling, gymnastics, tennis, skating, and more activities. There was also mutual respect and trust between the guards and the prisoners. Shockingly, some guards would even loan prisoners their rifles to go hunting. It's no wonder one prisoner referred to his time there as "the best thing that ever happened to me."

Send your thoughts to drmjw@aol.com

Around the State



On Saturday, April 6th, 8 members of the Tampa Bay Chapter participated in “Paint Your Heart Out Tampa”, a volunteer organization that paints the homes of low-income elderly residents. Including spouses, a total of 16 individuals participated! District 4 Director Justin Ferrans was the paint captain of the group for the 10th straight year.



FLORIDA SURVEYING & MAPPING SOCIETY

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To Whom It May Concern:

The Florida Surveying and Mapping Society has served the state of Florida for over sixty years dedicating its efforts to making a difference within the communities each local chapter resides in. For over ten years, the Collier-Lee Chapter of the Florida Surveying and Mapping Society has held many fundraising events to raise money to help provide Christmas gifts and holiday dinners for families in need. Due to our partnerships with Washington Family Ministries, Big Cypress Elementary School, and other community programs and the generous contributions we received throughout the 2018 year, we were able to provide Christmas gifts for five families, Thanksgiving dinner for ten families, and Christmas dinner for ten families.

We strive to surpass our goals each year. Our intent is to expand our community outreach to help the Washington Family Ministries provide school supplies for children in need in the Immokalee area. Our annual golf tournament is the kickoff to our fundraising season. The proceeds from the golf tournament and outside donations throughout the year allow us to continue our promise to the Lee and Collier County communities to spread the holiday cheer.

It is with your support that we will have the ability to continue our tradition of community outreach. Thank you in advance for your generosity.

Sincerely,

The Collier-Lee Chapter





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JUNE 8, 2019

Golfer Registration

SCHEDULE OF DAY'S EVENTS:

Registration — 7:30 AM - 8:00 AM
18 Hole Best Ball Scramble — 8:30 AM **Shotgun Start**
Lunch & Awards Ceremony — 1:00 PM

PRIZES WILL BE AWARDED TO:

Top three foursomes, closest to the pin, and longest drive

REGISTRATION FEES:

\$85 per person
\$340 per foursome
Golf registration includes 18 holes of golf with cart rental and lunch.

HOW TO REGISTER:

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Banks Engineering
10511 Six Mile Cypress Parkway, Suite 101
Fort Myers, FL 33966
Email: jsheppard@bankseng.com

GOLFER 1

Single players will be paired up with teams at random

Name: _____
Address: _____
City/State: _____
Zip: _____
Phone: _____
Email: _____

GOLFER 2

Name: _____
Address: _____
City/State: _____
Zip: _____
Phone: _____
Email: _____

GOLFER 3

Name: _____
Address: _____
City/State: _____
Zip: _____
Phone: _____
Email: _____

GOLFER 4

Name: _____
Address: _____
City/State: _____
Zip: _____
Phone: _____
Email: _____

PAYMENT INFORMATION:

Registration must be submitted by **May 24, 2019**

Check payable to: Collier-Lee FSMS

- Check**
 Cash

Amount Enclosed: _____

PLEASE NOTE: There will be no refunds, although substitutions are welcome at any time.

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PLEASE NOTE: Sponsorship must be paid in full and logo must be submitted by May 1st to be included on tournament t-shirt

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Chad Thurner



*Chad Thurner at the
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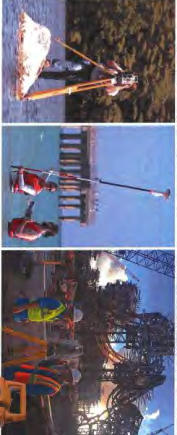


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IN THE AIR: using cutting-edge Unmanned Aerial Systems technology to model the physical environment and map terrain characteristics.

ON THE GROUND: with high-precision GPS receivers, robotic measurement tools, and the latest point cloud collection systems, locating the critical infrastructure that drives decision making locally and statewide.

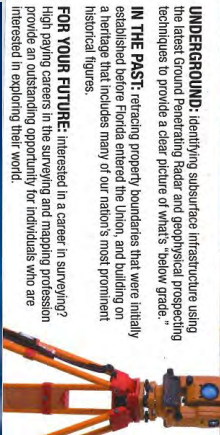
UNDERWATER: mapping Florida's Intracoastal Waterway, lakes, rivers, and estuaries to protect our most valuable natural resource.



UNDERGROUND: identifying subsurface infrastructure using the latest Ground Penetrating Radar and geophysical prospecting techniques to provide a clear picture of what's "below grade."

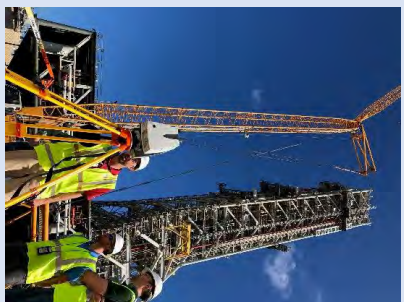
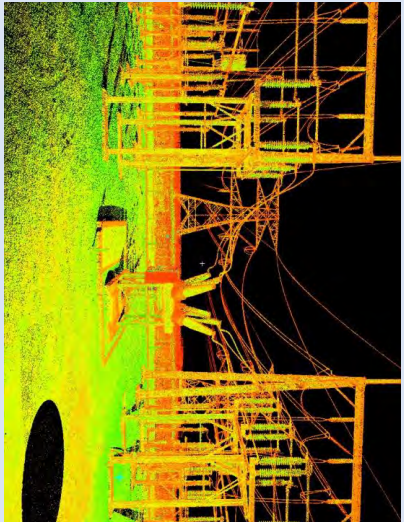
IN THE PAST: retracing property boundaries that were initially established before Florida entered the Union, and building on a heritage that includes many of our nation's most prominent historical figures.

FOR YOUR FUTURE: interested in a career in surveying? High paying careers in the surveying and mapping profession provide an outstanding opportunity for individuals who are interested in exploring their world.



CST-1 Course May 28th – July 16th, 2019

Tuesdays from 6:00 PM - 8:00 PM



Certified Survey Technician I

REGISTRATION IS OPEN!

The link for registration is:

<https://colliercounty.digitalisignup.com>

Course Fee: \$100

Please call (239) 377-1234, for further information. If a

Company is making payment, please call (239) 377-2399



2019 eLearning Courses



Basics of Real Property Course #8380 (3 General CEC)

\$ 70⁰⁰



Boundaries in Florida Course #8255 (6 SOP/L&R CEC)

\$ 120⁰⁰



Contracts for the Professional Course #8412 (3 General CEC)

\$ 70⁰⁰



Elevation Certificates and the Community Rating System Course #8256 (3 General CEC)

\$ 70⁰⁰



Ethics for the Design Professional Course #8621 (6 General CEC)

\$ 120⁰⁰



Florida Laws Course #7149 (6 SOP/L&R CEC)

\$ 120⁰⁰



Professional Ethics and Professional Courtesies FULL Video Course #8363 (6 General CEC)

\$ 120⁰⁰



Georgia Technical Standards for Property Surveys Course #8554 (6 General CEC)

\$ 120⁰⁰



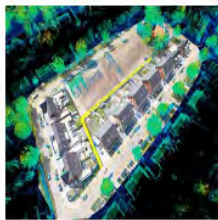
History of Surveying Course #7140 (6 General CEC)

\$ 120⁰⁰



Identification of Native and Non-Native Trees in Florida Course #8132 (6 General CEC)

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Introduction to Photogrammetry Course #7968 (3 General CEC)

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Land Tenure and Cadastral Systems Course #8260 (6 General CEC)

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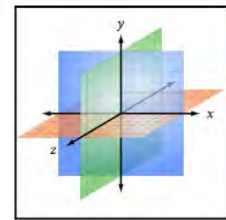
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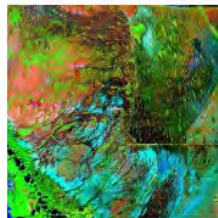
Practical Geometry for Surveyors Course #7141 (6 General CEC)

\$ 120⁰⁰



Public Land Survey System Course #7147 (6 General CEC)

\$ 120⁰⁰



Remote Sensing Applications to Surveying & Mapping Course #7148 (6 General CEC)

\$ 120⁰⁰



Writing Boundary Descriptions Course #8362 (3 General CEC)

\$ 70⁰⁰



FSMS Correspondence Courses

Lowest Rates of Any Florida Surveying and Mapping Continuing Education Provider

Step 1: Choose Course(s)

3 Hour Courses Available

- A History of the Prime Meridian Marker, #8403, 3 CEC**
- Basics of Real Property, #8359, 3 CEC**
- Contracts for the Professional, #8411, 3 CEC**
- Digital Signatures for Surveyors, #8491, 3 CEC**
- Elevation Certificates and the Community Rating System, #8257, 3 CEC**
- Introduction to Photogrammetry, #7887, 3 CEC**
- Quality Assurance/Quality Control for the Design Professional and Technical Staff, #9293, 3 CEC**
- Writing Boundary Descriptions, #8361, 3 CEC**

6 Hour Courses Available

- Boundaries in Florida, #7667, 6 CEC**
- Chapter 177, Platting (Plat Law), #6970, 6 CEC**
- Client Satisfaction Excellence for Surveying and Mapping Professionals, #7229, 6 CEC**
- Critical Communication for Surveying & Mapping Professionals, #7228, 6 CEC**
- Ethics for the Design Professional, #8620, 6 CEC**
- Florida Laws, #6966, 6 CEC**
- Florida Surveying Law and Rule Changes, #9573, 6 CEC**
- Georgia Technical Standards for Property Surveys, #8553, 6 CEC**
- Geographic Information Systems (GIS), #7107, 6 CEC**
- History of Surveying, #7108, 6 CEC**
- Identification of Native and Non-Native Trees in Florida, #7874, 6 CEC**
- Land Tenure and Cadastral Systems, #7829, 6 CEC**
- Map Projections and Plane Coordinate Systems, #7669, 6 CEC**
- Mean High Water Observations and Computations, #8220, 6 CEC**
- Practical Geometry for Surveyors, #7109, 6 CEC**
- Public Land Survey System, #6979, 6 CEC**
- Remote Sensing Applications to Surveying & Mapping, #6972, 6 CEC**
- Stress Management for Surveyors & Mappers: How to be Productive Under Pressure, #6902, 6 CEC, ONLY AVAILABLE BY MAIL**
- Time Management for Surveyors & Mappers: How to be Productive & Exercise Time Mastery in a Hectic World, #6901, 6 CEC, ONLY AVAILABLE BY MAIL**

Step 2: Choose Member Type

FSMS Member

<i>EMAILED</i>	Fee	Quantity	Amount
6 CEC	\$115 Per Course	x _____ =	\$ _____
3 CEC	\$58 Per Course	x _____ =	\$ _____
<i>MAILED</i>			
6 CEC	\$125 Per Course	x _____ =	\$ _____
3 CEC	\$68 Per Course	x _____ =	\$ _____
TOTAL			\$ _____

Non-Member

<i>EMAILED</i>	Fee	Quantity	Amount
6 CEC	\$135 Per Course	x _____ =	\$ _____
3 CEC	\$78 Per Course	x _____ =	\$ _____
<i>MAILED</i>			
6 CEC	\$145 Per Course	x _____ =	\$ _____
3 CEC	\$88 Per Course	x _____ =	\$ _____
TOTAL			\$ _____

Non-Licensed in ANY State

<i>EMAILED</i>	Fee	Quantity	Amount
6 CEC	\$100 Per Course	x _____ =	\$ _____
3 CEC	\$60 Per Course	x _____ =	\$ _____
<i>MAILED</i>			
6 CEC	\$110 Per Course	x _____ =	\$ _____
3 CEC	\$70 Per Course	x _____ =	\$ _____
TOTAL			\$ _____

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Name: _____ PSM#: _____ State: _____ FSMS Member: ___ YES ___ NO

Firm: _____ Sustaining Firm: ___ YES ___ NO

Address: _____

City/State: _____ Zip Code: _____

Email Address: _____ Work Phone: _____

Payment Information: _____ Check Enclosed (Payable to FSMS) _____ VISA/MasterCard/American Express
 Card #: _____ Exp. Date: _____ CVV Code: _____

Billing Address of Credit Card: _____

Signature: _____

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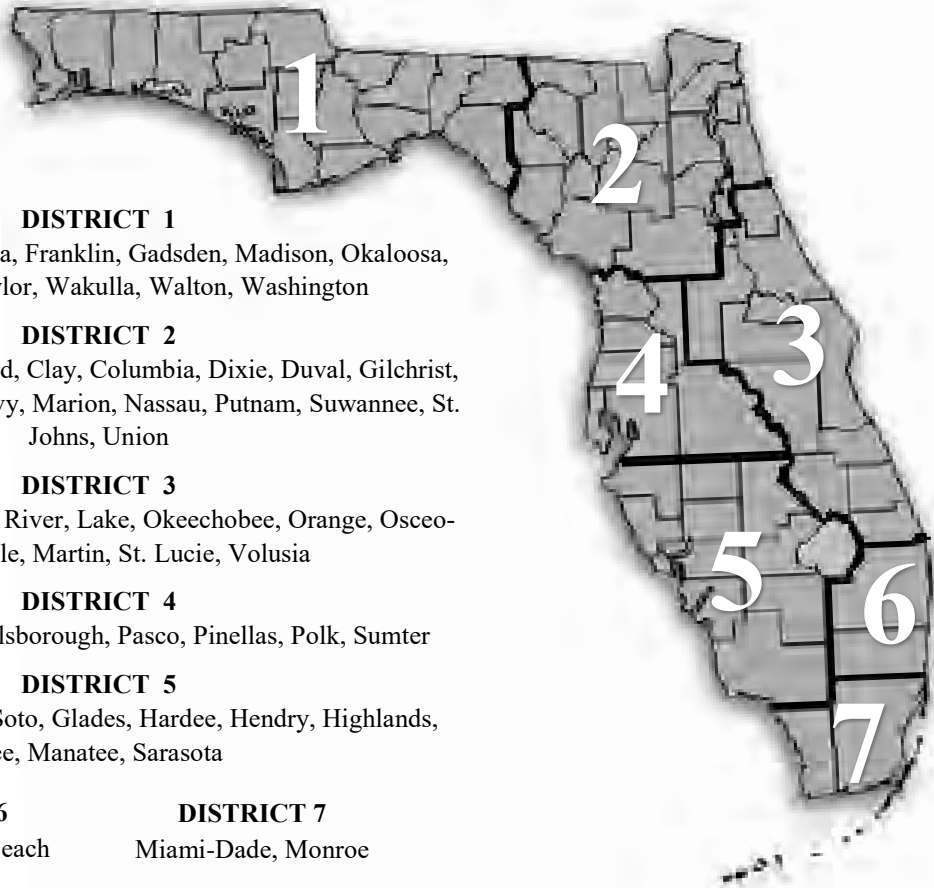
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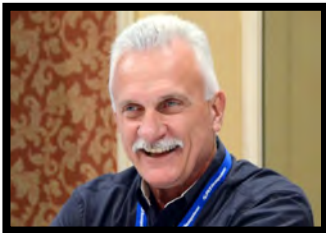
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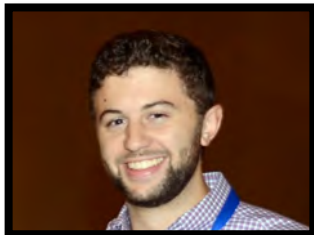
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Tom's Tip of the Month

The 12 Laws of Karma

Click on the picture below to view the video!



The Florida Surveyor is the official publication of the Florida Surveying and Mapping Society, Inc. (FSMS). It is published monthly for the purpose of communicating with the professional surveying community and related professions who are members of FSMS. Our award winning publication informs members eleven months of the year of national, state, and district events and accomplishments as well as articles relevant to the surveying profession. The latest educational offerings are also included.

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Accuright Surveys of Orlando, Inc.	407-894-6314	CPH, Inc.	407-322-6841
Agnoli, Barber & Brundage, Inc.	239-597-3111	Craven-Thompson & Associates, Inc.	954-739-6400
AIM Engineering & Surveying, Inc.	239-332-4569	Cross Surveying, LLC	941-748-8340
Allen & Company, Inc.	407-654-5355	Culpepper & Terpening Inc.	772-464-3537
Allen Engineering, Inc.	321-783-7443	Cumbey & Fair, Inc.	727-324-1070
AM Engineering, Inc.	941-377-9178	Dagostino & Wood, Inc.	239-352-6085
American Consulting Professionals, LLC	813-435-2600	Dennis J. Leavy & Associates	561-753-0650
American Surveying, Inc.	813-234-0103	DMK Associates, Inc.	941-475-6596
Amerritt, Inc.	813-221-5200	Donald W. McIntosh Associates, Inc.	407-644-4068
Arc Surveying & Mapping, Inc.	904-384-8377	Donoghue Construction Layout, LLC	321-248-7979
Associated Land Surveying & Mapping, Inc.	407-869-5002	Douglass, Leavy & Associates, Inc.	954-344-7994
Avirom & Associates, Inc.	561-392-2594	DRMP, Inc.	407-896-0594
Axis Geospatial SE, LLC	386-439-4848	DSW Surveying & Mapping, PLC	352-735-3796
Banks Engineering	239-939-5490	Durden Surveying and Mapping, Inc.	904-853-6822
Barnes, Ferland and Associates, Inc	407 896-8608	E.F. Gaines Surveying Services, Inc.	239-418-0126
Barraco & Associates, Inc.	239-461-3170	Echezabal & Associates, Inc.	813-933-2505
Bartram Trail Surveying, Inc.	904-284-2224	ECHO UES, Inc.	888-778-3246
BBLS Surveyors, Inc.	239-597-1315	Eda Engineers-Surveyors-Planners, Inc.	352-373-3541
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Benchmark Surveying & Land Planning, Inc.	850-994-4882	Element Engineering Group, LLC	813-386-2101
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Boundary & Mapping Associates, Inc.	407-696-1155	F.R. Aleman & Associates, Inc.	305-591-8777
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Pennoni Associates, Inc.	215-222-3000		

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Upcoming Events

May 2-3, 2019
 FSMS Committees and Board Meeting
Gainesville

May 28, 2019
 CST-1 Course Begins
Naples

June 8, 2019
 Collier-Lee Annual Golf Tournament
Estero

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