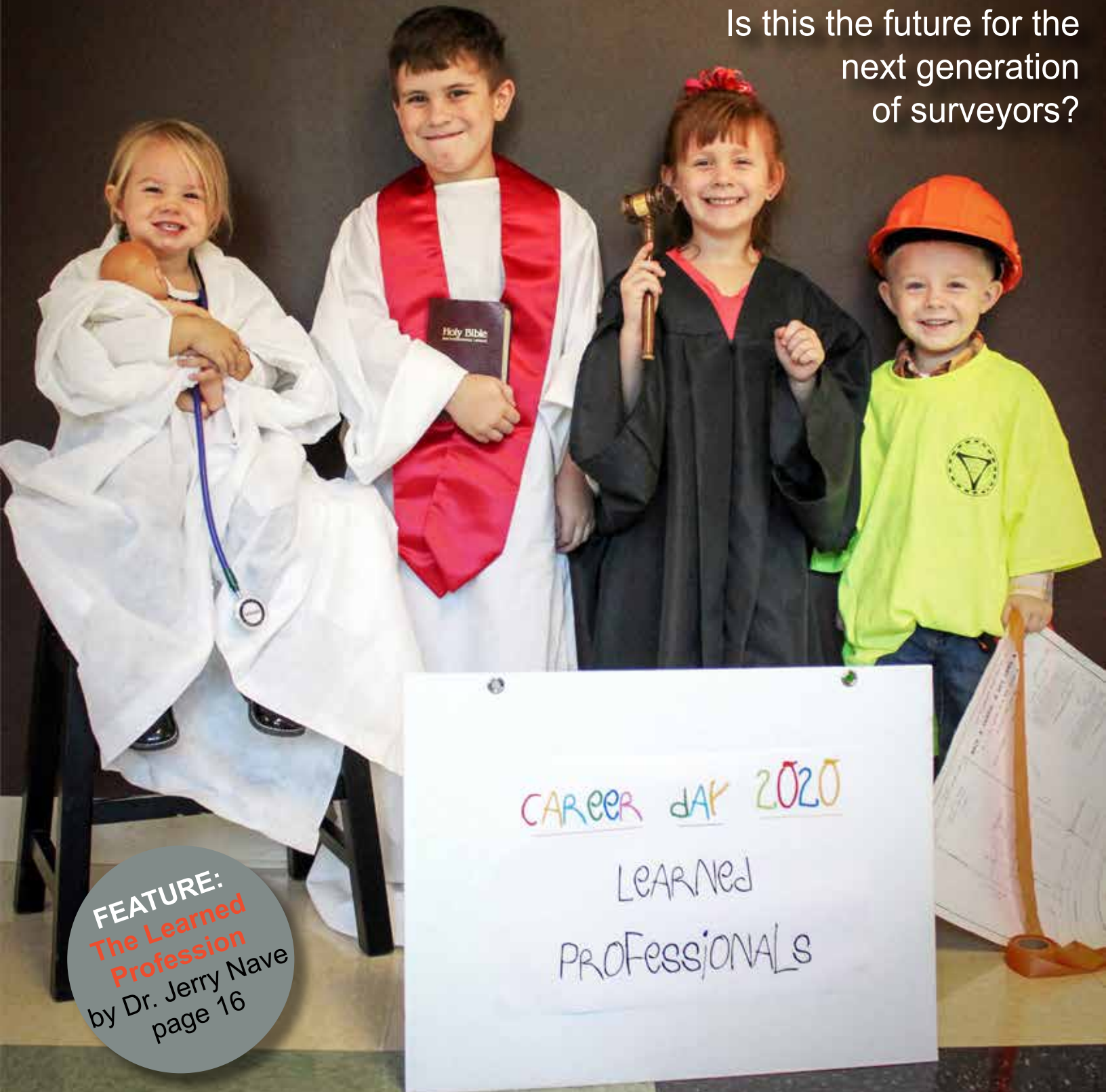


# The Tarheel SURVEYOR

FALL 2014 | No. 14.2

Is this the future for the  
next generation  
of surveyors?



CAREER DAY 2020

LEARNED  
PROFESSIONALS

FEATURE:  
The Learned  
Profession  
by Dr. Jerry Nave  
page 16

# 2014-2015 NCSS SUSTAINING MEMBERS



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# The Tarheel SURVEYOR

fall  
2014

## IN THIS ISSUE...

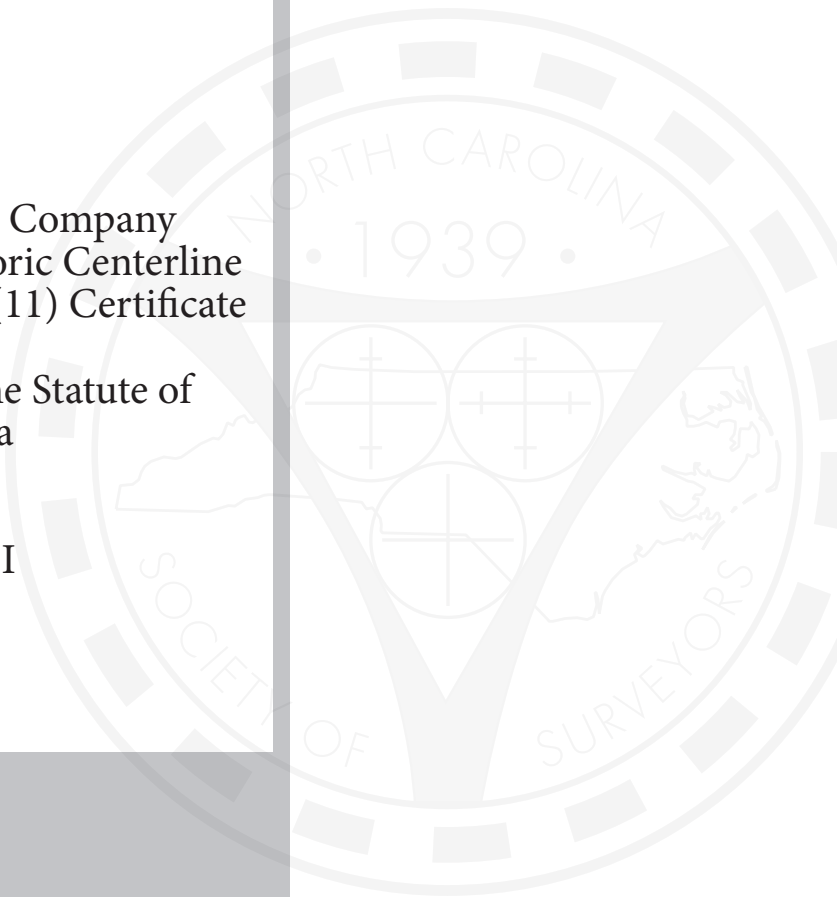
- 2 >Who We Are
  - >Chapter Meetings
- 3 >NCSS Local Chapters
- 4 >Director's Notes
- 7 >Letter from the President
  - >Schedule at a Glance
- 8 >Upgrading
- 9 >Continuing Studies at NC A&T
- 10 >Unrivaled Education
- 12 >Foundations for the Future
  - >View from the Capital
- 14 >NSPS Update
- 16 >FEATURE ARTICLE:  
**The Learned Profession**
- 20 >Once Upon a Time
- 22 >North Carolina Railroad Company  
Records Surveys of Historic Centerline
- 24 >Which NC GS 47-30 (f)(11) Certificate  
to Use?
- 27 >Parol Agreements and the Statute of  
Frauds in North Carolina
- 29 >2014 Institute Graduates
- 30 >Member Profile:  
James I. "Jeff" Jeffreys, III
  - >2014 Plat Contest
- 31 >Problem Corner
  - >CAD Corner

### ABOUT NCSS:

- >Founded January 31, 1939
- >Second oldest professional  
surveying organization in the  
United States
- >Only professional surveying  
organization in NC
- >Affiliated with the National  
Society of Professional  
Surveyors and, therefore, all  
Professional Members are also  
accounted as members of  
NSPS as of July 1, 2013

### OUR MISSION:

"A society of professional  
surveyors and their associates  
dedicated to enhancing  
professionalism, improving  
legislative awareness and  
promoting the profession of  
surveying."





# WHO WE ARE

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pattpatt555@bellsouth.net

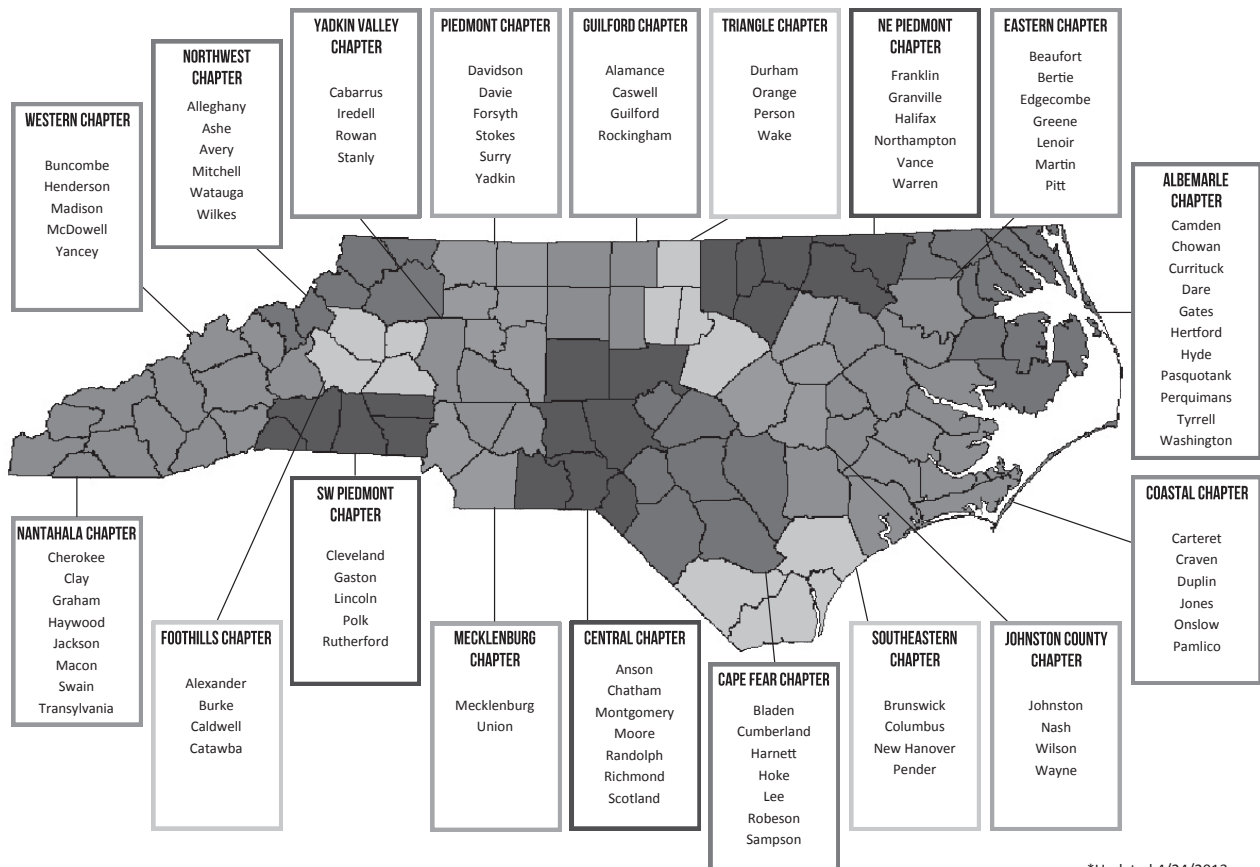
**YADKIN VALLEY CHAPTER PRESIDENT**

Norman G. Ribelin  
ribelin@bellsouth.net

## CHAPTER MEETINGS

CHAPTER	DATE & TIME	LOCATION
Albemarle	3rd Tuesday   6:30 pm	Cypress Creek Grill, Elizabeth City
Cape Fear	Last Thursday   6:30 pm	Various Locations, Fayetteville
Central	Last Monday   7:00 pm	Various Locations, Asheboro/Southern Pines
Coastal	Last Monday   6:30 pm	Texas Steakhouse, Morehead City
Eastern	2nd Monday   6:30 pm	Parker's BBQ, Greenville
Foothills	2nd Tuesday, 7:00 pm	Timberwoods, Morganton
Guilford	2nd Tuesday   6:00 pm	The Porterhouse Grill, Greensboro
Johnston County	2nd Tuesday   6:00 pm	Holt Lake BBQ, Smithfield
Mecklenburg	1st Monday   6:00 pm *no meeting Jul-Aug	Dilworth Grille, Charlotte
Nantahala	3rd Tuesday   6:30 pm *no meeting Jun-Aug	Bogarts, Sylva
NE Piedmont	Last Tuesday   7:00 pm	Various Locations, Louisburg
Northwest	3rd Tuesday   6:00 pm	Sagebrush Steakhouse, Boone
Piedmont	4th Monday   6:00 pm *no meeting Nov/Dec	Riverridge Tap House, Clemmons
Southeastern	Last Wednesday   7:00 pm	Carolina BBQ, Wilmington
SW Piedmont	2nd Thursday   6:30 pm	Ryan's Steakhosue, Forest City
Triangle	3rd Tuesday   6:30 pm	Casa Carbone, Raleigh
Western	2nd Tuesday   6:30 pm	Cornerstone Restaurant, Asheville
Yadkin Valley	2nd Wednesday   6:30 pm	Ryan's Steakhouse, Salisbury

## NCSS Local Chapter Areas



\*Updated 4/24/2013

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**Francisco Mahecha, PLS**  
[fmahecha@avioimage.com](mailto:fmahecha@avioimage.com)

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# DIRECTOR'S NOTES



With Representative John Torbett at the 2014 Otis A. Jones Educational Institute in Raleigh

**I**n high school, I worked for Amoco Oil, Inc. processing credit card payments. It was fairly good money for the time period because I worked on production. The faster I could enter a "batch", the more money I would make. These raises came in increments of \$0.10 per hour per month so, by the end of the year, I could make \$1.20 more per hour. The only problem with the job was that I hated it! I hated sitting at a computer all day every day doing the same thing over and over, trying to do it faster than the last time.

You see, I find myself motivated by 3 things: people, change and experience. I love reconnecting with someone that I haven't seen in years, thinking about that big trip in a few months, or brainstorming a new idea that no one has tried yet. That is why this job is perfect for me. As your Executive Director, I get to constantly move towards a new event, meet new people and dream about new ideas. Knowing this, you can see that I have truly enjoyed the Society's work since our last publication.

**Membership Drive:** Marion, Rhonda, Morgan and I crisscrossed the state visiting every Chapter to give an update on the Society's activity and the importance of individual membership. As a result, we have 45 new members so far for the 2014-2015 year.

**Realtors:** We have continued to speak to realty groups across the state and find ways to partner with them. The latest meetings were in Manteo and Shelby. Recently, a Hickory surveyor told me that a realtor friend of his called to say that the North Carolina Real Estate Commission (NCREC) was really emphasizing surveying and he wouldn't close a house in the future without strongly encouraging buyers to have an updated survey. This month, we will attend a REALTOR-thon on the Outer Banks with over 100 realtors in attendance to talk to them about surveying.

**Legislation:** Gary Thompson's Department of Geospatial Technology Management found its way into the budget negotiations during the short session of the General Assembly. Unfortunately, someone wanted to move the entire department again after only 2 years of being housed in the Department of Public Safety (DPS) and

countless hours of building an IT infrastructure that is state-of-the-art. After frantically lobbying House members, Representatives Arp, Daughtry, Torbett and Boles proved themselves good friends to surveyors. The item was removed from the budget and a study committee was formed to report by December on the feasibility of the move. I may need you to act in the future on this issue, but we are pleased that the move was suspended.

**Otis A. Jones Institute:** The Institute took place in October, offering a schedule of excellent courses by premier instructors from across the nation - including watching the test flight of a UAS. I think Mr. Jones would be proud to see the level of education being offered by an event named after him.

**MAPS:** The organization helped update our website and bought a scanner to begin a concentrated movement to archive more plats from your predecessors.

**Committees:** The Standards of Practice, Long-Range Planning and Learned Profession committees have all been active this year researching and developing important ideas for the future of surveying. You will hear more about these in the coming months, but make sure to read our feature article on becoming a Learned Profession.

**Gigi:** Most importantly, I have become Gigi (grandmother) to a beautiful little girl named Julia! No event trumps this one, as I am having the privilege to see my "little girl" begin her journey in motherhood.



Gigi, baby Julia, and family

I will wrap up my current train of thought because I have another event to anticipate with eagerness. Why don't you come, too? The 2015 Conference and Trade Show is coming to the Great Wolf Lodge in Concord, February 5-7. It's a perfect venue for your family because a hotel reservation automatically awards entrance into the water park for up to 6 people. Join us as we seek to strengthen Professional Surveyors throughout the region.

*Christy C. Davis*

Christy C. Davis, Executive Director





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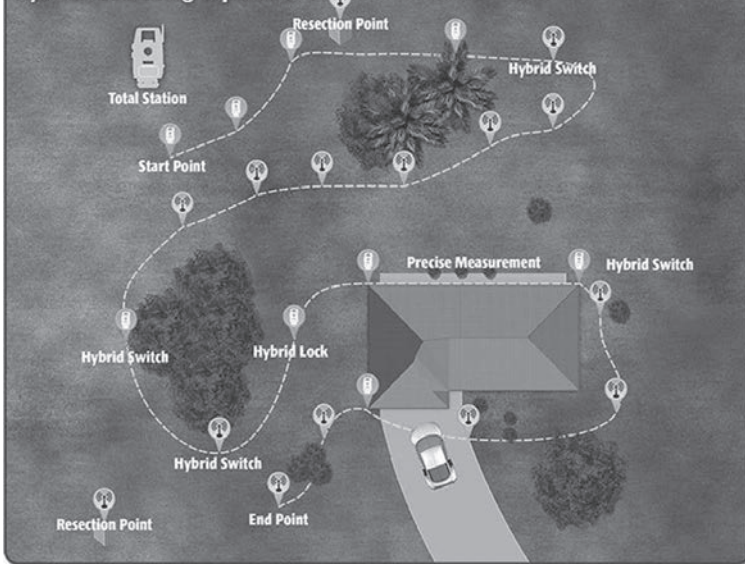
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# LETTER FROM THE PRESIDENT



**W**hile I was fishing in the Alligator Bay, the New River Inlet, the Intracoastal Waterway, and the Atlantic Ocean just off Topsail Island this past weekend, I was thinking about how great North Carolina is. Where else would you want to live besides North Carolina? We have beaches, mountains, farms, great lakes, great cities, great colleges, a professional football team, a professional basketball team, a Nascar track, Nascar teams, and the list goes on and on. In my opinion, we have the best state in the United States of America. It is an honor to represent this great state!

We need you to help us keep this State and this Society great. The Society needs your help. We would welcome your input. We have lots of committees you could work on if you are not on one already. We need representation and participation from people from all over the state. We have some awesome chairs or chairmen of our committees. They would welcome your help. Please do not be afraid to join or at least share your opinion.

We need you to ask surveyors that are not members to join the Society so they have a chance to share their opinions also. The officers, the board of directors, the committees, and the staff represent ALL surveyors across this great state. If surveyors are not members, then chances are slim that they know about the issues we are facing.

In our Policy Manual there is a quote from Theodore Roosevelt, "Every man owes a part of his time and money to the business or industry in which he is engaged. No man has the right to withhold his support from an organization that is striving to improve conditions within his sphere." I agree with Mr. Roosevelt.

We need to make decisions that are beneficial to our profession. There are a lot of important

issues that we typically face. We would love to have every surveyor's opinion on these issues. My dad always told me, "if you do not speak up, then keep your mouth shut later."

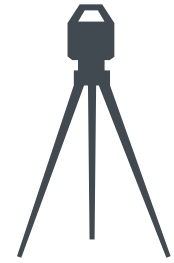
Somebody told me a while back that all I cared about was membership. They were partially right. It is not all I care about, but I do care a lot. I care about our Profession, our state, and you. I want to make decisions based upon the diversity of geography, technology and business structures that we see in our membership. We need everybody's opinions.

Please get involved. As I said please join a committee if you are not on one. Please attend or continue to attend chapter meetings, board meetings, and general membership meetings so you know what issues we are facing. Give me or any other officer, board member, or member of our staff a call if you have an opinion or a question about certain issues.

You have probably noticed by now that I have not mentioned any particular issue besides needing your participation. I can assure you that was on purpose. I want you to get involved if you are not already and find out what all the issues are. Please get involved and stay involved!

In closing, I would like to thank all the ones that are already involved. You guys and girls are awesome! I look forward to the rest of the year. I have enjoyed meeting and getting to know new surveyors and people this year. I have enjoyed visiting with old friends and making new friends. I have enjoyed visiting with a lot of the different Chapters. I have enjoyed being your President. I enjoy being a part of this Society and this Profession. Thank all of you for allowing me to be a part.

Marion L. Sandlin, Jr.



## Schedule at a GLANCE

### NOVEMBER 7

#### CFS Biennial Update

Instructor:  
John Gerber, PE, CFM  
1:00pm-5:00pm, 4 PDHs  
November 7, 2014  
NCSS Office  
Wake Forest, NC

### NOVEMBER 14

#### Staking Roadways

Instructor:  
Emilio M. Gilarranz  
8:00am-5:00pm, 8 PDHs  
November 14, 2014  
Foothills Higher Education Center  
Morganton, NC

### DECEMBER 5

#### Tidal Datums & Coastal Wetlands Regulation

Instructors:  
Rick Carraway & Steve Trowell  
8:00am-5:00pm, 8 PDHs  
December 5, 2014  
The Chelsea Restaurant  
New Bern, NC

### DECEMBER 12

#### Easements & Profits for Land Surveyors

Instructor:  
John Logsdon, Esq., PLS  
8:00am-5:00pm, 8 PDHs  
December 12, 2014  
The Village Inn Event Center  
Clemmons, NC

The NCSS office will observe these holidays:

#### Veteran's Day

Closed November 11

#### Thanksgiving

Closed November 27-28

#### Christmas

Closed December 24-25

#### New Year's Day

Closed January 1, 2015

# Upgrading

## Updates to the NCSS Website and How They Will Benefit You

by Rhonda Lester, NCSS Office Manager

As the staff traveled to each chapter earlier this year, one of the membership assets discussed was the planned restructuring of our website and member database. The decision to make these upgrades were a direct result of efforts by NCSS Museum of Archives and Preservation of Surveying, Inc. (NCSS MAPS, Inc.) to house historical data more efficiently. Always aware of our responsibility to be good stewards of members' money, we have worked hard to plan and integrate changes that will return the most value with the least investment. We are scheduled to unveil the improved site at our next Board of Directors' meeting on November 1st. By the time you read this article, changes should be in place and available. We believe the new product will be cleaner and definitely more user friendly for both the surveyor and the general public with several new or improved features.

At the 2011 Conference and Trade Show in Raleigh, NC, it was unveiled that NCSS MAPS had provided for the build of a database to preserve survey maps of deceased and retired surveyors. This feature of our website would give surveyor members the ability to access important pieces of history that would otherwise be lost. Promptly after this unveiling however, we were inundated with maps donated by loved ones, several of which were life-long libraries of work. The process of scanning, entering, and identifying the maps then became a bigger task than was first thought. We were able to get a good start on the project through the help of interns across the state, however the current system did not respond well to changes in Google geocode and was in desperate need of repair and updates in order to still be a viable resource for our members. Since that time, NCSS MAPS has been very aggressive toward meeting their mission of preserving surveying history. The committee's new leadership met to discuss the issues, create a budget, purchased a scanner to be housed in the NCSS office and provided additional money to make improvements to the database. These project improvements now allow easier entry of maps, as well as a cross reference with Google Maps. It is a sleek feature that will grow in value over time as maps are entered and the inventory expands.

As an added feature to the NCSS MAPS improvements, we are excited about the new added ability to search for a land surveyor by county. Already in place was the ability to locate a land surveyor by searching last name, city, and business name. Weekly, the NCSS staff takes calls from the public looking for a land surveyor in their area, frequently needing the ability to specifically locate them by county. This improvement will serve our members by driving business their way. Remember, though, only members are recognized by our system, so surveyors should be sure to maintain active NCSS membership and correct profile information so they appear in this list when a search is executed.

The new website offers many other innovative tools that will keep our members informed about what's on the horizon legislatively, as well as about the surveying community as a whole in North Carolina. NCSS event details and registration will be easier than ever and offer more visual content. The staff also benefits by database improvements, which will allow the office to run more efficiently and effectively.

With technology forever progressing, it's an ongoing project, but NCSS is striving to remain on the cutting edge. You can help. If you or someone in your office can offer assistance with the MAPS database we would love to hear from you. It is our belief that with the enhancements in place, the NCSS website will become a strong resource for our members. We sincerely hope surveyors will take the time to visit the site, become familiar with the attributes and will be able to see the changes as adding value to membership. We are eager to hear the feedback that will be forthcoming.

*Rhonda Lester joined the NCSS staff as Office Manager in the spring of 2009. She has worked closely with our IT developer and has been instrumental in implementing the recent changes and additions made to our website and database. If you have questions regarding the new site or if you are interested in aiding the effort of scanning old plats into the MAPS database, you may contact her at [rlster@ncsurveyors.com](mailto:rlster@ncsurveyors.com).*

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# Continuing Studies at NC A&T

by Peggy Fersner, PE

**A**s this is being written, we are in week 7 of our 2014 – 2015 academic year with a lot of exciting things happening. To catch you up from last spring, we had two students, Garrett Dorsett and Randy Jeffries, graduate with their Geomatics degree. They successfully presented their Senior Capstone Project to our Advisory Board on May 2nd and - the really big news - they passed their Fundamentals of Surveying exam. This was also the first time that students registered to take the exam through NCEES and the exam was administered at a computerized testing center. The most interesting thing is the short turn-around time for them to receive the results. For Randy, we knew the exact day that he was supposed to be notified of the results. That morning, I would say he was a bit quiet so we did not ask if he had heard anything. However, mid-morning there was a happy “scream” from our conference room and Randy ran



From L to R: Garrett Dorsett and Randy Jeffries, 2014 Graduates of NC A&T's Geomatics Program

into my office with the big announcement. That was one down and one to go. Garrett had taken the exam after Randy so we were waiting anxiously to see if we could claim a 100% pass rate. Garrett's results did not come in until after graduation and he decided to play with us a bit. He announced that he had his results, but he would give us that information the following week when he was on campus. After waiting anxiously, his news was positive; so this year we can claim a 100% pass rate. I guess we are doing something right. Both of these gentlemen are gainfully employed and thoroughly enjoying the real world. Randy is working with Howard Baker, Inc. and Garrett is with Meridian Associates. Along with the legislation taking effect in January of 2013 and Jerry Nave's recruiting efforts at the community colleges and the military bases, we had 13 students apply and be accepted into the program this year. This was an all-time high for the program and we are hopeful that this upswing will continue. Our “typical” student is now taking our courses online while being employed full-

time. Most either have a two-year community college degree or 4-year degree, but the commonality is that they are all working in the industry. Reasons given for pursuing the 4-year degree is upward mobility in their companies and the ability to be licensed in other states. These are all great students and we applaud their diligent efforts as we know the difficulty in juggling a career, family responsibilities, and their academic pursuits.

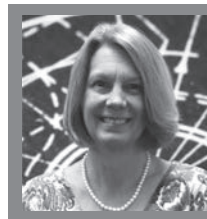
We now have some financial incentive that will be published on our website and the “Bea Surveyor” website. This financial incentive is graciously provided by the NCSS Educational Foundation. For the first ten new students that apply, are accepted to the university, and register for classes, each will receive a one-time scholarship of \$500.00. This award will help defray approximately the cost of two courses. We are excited about this and look forward to seeing the results.

We have three students working on the first of their two Senior Capstone Projects. This semester concentrates on the deed research, regulatory requirements, and a conceptual



2014-2015 Senior Geomatics Students

plan. The students have completed the deed research on the 37 acre tract and are ready to move to the next step. To make this as real as possible, they will be starting the boundary survey in the next few weeks and we know that the experience they derive from that is invaluable. GPS will be incorporated into the project for control and the topo will be created from existing LiDAR data with ground verification.



Peggy Fersner is the Geomatics Coordinator at NC A&T State University in Greensboro. She has been on staff since 1993, teaching surveying, GIS, and hydrology courses. She has earned both her BS and MS in Civil Engineering.

Problem Corner Answers:  
Distance DA=121.90, Distance FC=89.47, Distance DC=123.78,  
Angle BFC=79° 58' 42", Area ABCD=15,287



# Unrivaled Education

by Christy C. Davis, NCSS Executive Director

The 2014 Otis A. Jones Educational Institute was held at the Jane S. McKimmon Center in Raleigh, October 8-10th. Mr. Jones, who passed away in January of 2010, had a passion for education that would elevate the professional standing of surveyors throughout North Carolina and surrounding states. Surveyors can graduate after taking a total of 27 hours each in Sections A, B and C. Section D is for Certified Floodplain Surveyors, which we also included over the course of three days. The Institute, which has been in existence since 1987, continues to be an avenue where surveyors can pursue professional excellence.

Section A typically relates to topics on boundary issues. This year, we were privileged to have Jeffrey O'Briant, Kris Kline and Gary Kent participate over the course of three days. These classes had spirited discussion and many practical questions were answered for those in attendance. Hugh Clark, who participated in Section A, said, *"I have been involved with the Institute previously while working on the education committee; however, this was my first time attending the Institute for an entire section. There is something exciting about attending and completing a section. No time is wasted and PDH's are collected even during lunch. The staff from the Society office did an excellent job and everything ran smoothly. The instructors I saw in Section A were top notch. It was a pleasure to hear Gary Kent and his approach to the role of the surveyor in solving, not creating, problems. Gary Kent's thoughts on the role of the surveyor should be heard by every surveyor in the state."*

Section B hosted classes having to do with business practices and their application. We were fortunate enough to have several instructors with years of business experience. Elisabeth "Lissa" Turner, who completed Section B, thought the class was very beneficial. *"Attending Section B of the NCSS Otis A. Jones Educational Institute has benefited me greatly. I learned many tips on improving client communication including recognizing the important elements of pre-proposal meetings, writing better proposals, and minimizing scope creep. It was great to have the opportunity to hear from successful business owners about their leadership styles, as well as techniques a company should use to manage clients and projects. The knowledge gained about the different levels of financial management and how to handle accounts receivable and change order problems will prove to be invaluable tools that will give me an advantage*

*in my professional career. The in-depth discussions with current and past board members as well as with the current board counsel about ethics, rules of conduct, licensure, and new policies and guidelines were very insightful. All of the instructors were able to answer questions relating to real-world problems and issues. The Institute courses offer a great opportunity to discuss the current and future issues facing our profession with knowledgeable instructors and peers."*

Section C addressed many of the emerging issues that surveyors can expect over the next five years including Unmanned Aircraft Systems, bathymetry, and surveying well sites and pipelines for hydraulic fracturing. Thursday morning was ushered in by a visit and "Question and Answer" opportunity with Representative John A. Torbett, who serves as Co-chair of the Unmanned Aircraft Systems Committee in the North Carolina House. Representative Torbett (R-Gaston) cast the vision North Carolina has for UAS use and fielded questions from surveyors on the specifics of the initial legislation. He stayed to hear from Kyle Snyder, of Next Generation Air Transportation, who presented specifics on drone technology. Friday also consisted of fine instruction from Dr. Kenneth Taylor, North Carolina State Geologist, who described what surveyors can expect from the new Hydraulic Fracturing legislation and the formation of the rules to govern the process in the future.

Section D offered the Certified Floodplain Surveyor Certification program (CFS). Nine surveyors took the three-day course, which was followed by an exam on Saturday. The students were mentally exhausted by Friday afternoon, but well prepared to add a significant credential to their professional resume. Billy DiGiacomo summed up his reasons for participating, *"I chose to take the CFS Training course through NCSS in order to have a better understanding of the submittal process for Letters of Map Change (LOMCs) requests to FEMA. In addition to learning this complete process, I was also given a much better overall knowledge base of the National Flood Insurance Program (NFIP) and the North Carolina Floodplain Mapping Program respectively. I believe that taking this course has certainly made me a more educated and resourceful surveyor with regards to floodplain mapping and LOMCs submittals. I would recommend this course to other professional surveyors regardless of their area of expertise."*

At lunch on Friday, President of NCSS, Marion Sandlin, and Chair of the Education Committee, Jim Davis, celebrated three graduates among the ranks of our best and brightest. William Larry King, Robin J. Murray and Marion L. Sandlin, Jr. were welcomed into the ranks of Otis A. Jones Educational Institute alumni. Many thanks to all of you who made this year a success.

*\*See more about the 2014 Institute Graduates on page 29*

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	<b>Carlson Software Workshop</b> <i>for</i> <b>Engineers &amp; Designers</b> \$99 for 8 hrs (8 PDH credits)  Statesville NC on 11/19/2014 Raleigh NC on 12/10/2014	Topics include: <ul style="list-style-type: none"><li>• CAD tips &amp; tricks,</li><li>• quantity calcs for materials including cut/fill &amp; topsoil,</li><li>• subdivision and roadway design,</li><li>• tips for modeling, visualization and creating drive-thru movies for you and your clients,</li><li>• drafting, design &amp; visualization of pipes &amp; structures</li></ul>

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# Foundations for the Future

by J. Chris Witherspoon, PLS

**T**his article marks the official opening of the 2014-2015 raffle season. The bar was set high last year, as a record of over \$16,000 was raised for your Education Foundation. This season will, once again, bring you two opportunities to support your Education Foundation. The "CASH" raffle will consist of 100 tickets sold for \$100 each. There will be a reverse drawing held at the NCSS Conference in February to determine the winners. The first ticket drawn will win \$500, the next to last ticket drawn will win \$500. The last ticket drawn will be the grand prize winner and will win \$2000. This year, we will be awarding the person that sells the last ticket drawn with \$100. Don Clements has once again offered us a week at his beach condo which we will be raffling off. Tickets for the condo will be \$20 each or you can get 6 tickets for \$100. Please help us make this year as successful as last year and thanks in advance for your support. All of the raffle money raised goes directly towards scholarships and the endowment.

On behalf of the Education Foundation and the entire membership of NCSS, I want to take this opportunity to thank Sid Autry, Nancy Williamson and Richard Bennett for their service and leadership on the Foundation Board. Their leadership and guidance will be greatly missed. Richard leaves the Foundation after nine years on the board, most of which he spent as Treasurer. We wish them well and sincerely hope they will stay involved with the Foundation as we continue to move forward toward our goals. Personally, I want to thank each one of them for their support of me as the President of the Foundation. Without their hard work and ideas, we would not be where we are today. Please take the time to thank them as well when you have the opportunity.

The Foundation continues to explore new ways to support the promotion of the college programs throughout the state and is continually looking for opportunities to grow the endowment. If you have any ideas or want to get involved, please do not hesitate to reach out to us.



'Til next time,

Spoon

# View from the Capital

by Kerri Burke, McGuire Woods Consulting

**T**he General Assembly officially adjourned the evening of Wednesday, August 20, marking the official end of the 2014 short session. The extended short session, of which was first projected to end by July 4th, resulted in 572 new laws during the two-year session. During the legislative session, several comprehensive laws were passed, including:

## Geospatial and Technology Management

Active lobbying by the NC Society of Surveyors resulted in retaining the Geospatial and Technology Management section within the Department of Public-Safety Emergency Management. A special thanks to Representative Dean Arp (R-Union), who was pivotal in ensuring the department protection within legislative budget negotiations: "I was proud to work and support retaining the Geospatial and Technology Management section within the Department of Public Safety-Emergency Management. The department manages and provides critical location and risk data to emergency response personnel, surveyors, engineers, and agriculture. The associated work will continue to strengthen our state's ability to respond to hazardous events and support economic development and agriculture operations."

## State Budget

After more than a month of contentious negotiations between House and Senate leaders over the \$21 billion budget for fiscal year 2014-2015, which began on July 1, a compromise was met with the House, Senate and Governor. Highlights include:

- **Education:** The budget will provide teachers with a 7 percent pay raise and retention of teacher assistants. The pay raises will boost starting teacher salary to \$35,000 over two years and give most state employees \$1,000 raises and five additional vacation days.
- **Medicaid:** Reduction of \$135 million. Preserves current levels of eligibility for Medicaid benefits
- **Transportation:** DMV: Hires 14 more driver's license examiners at the Division of Motor Vehicles offices and authorizes additional DMV funds to produce a new-format driver's license and allows online renewal.  
Taxi Tax Refund: Repeals the refund of the state gas tax to taxi drivers, effective in July 2015.  
DOT Outsourcing: Outsources pre-construction activities.  
DOT Board: Calls for a study of privatization, sponsorships and fees.
- **Miscellaneous:** Lottery-Establishes a legislative oversight committee to examine lottery operations



and recommended changes. Drones-Prohibits the use of drones until December 2015 without special permissions. Establishes regulations and penalties for drone use. UNC-Requires a study of various aspects of tuition fees at University of North Carolina institutions. Film: Creates a \$10 million grant program for film production companies within the Department of Commerce to replace the existing film tax credit in the first half of 2015.

### Coal Ash Compromise

After House and Senate conference committee members of SB729, Coal Ash Management Act of 2014, announced in early August that they would not be able to come up with a compromise plan on how the state could clean up coal ash ponds, most political pundits deemed the issue “dead” for 2014. However, on the final days of the legislative session a compromise was reached between the House and Senate and passed each chamber, 84-13 in the House and 38-2 in the Senate.

- **Coal Ash Oversight Commission:** Established within the Department of Public Safety (House had originally wanted the commission with the Department of Natural and Environmental Resources). The new commission is authorized to grant three-year, instead of open-ended, extensions of the 15-year timetable for pond closures. The Senate leader will appoint three of the Coal Ash Management Commission’s nine members, the House leader another three, and the Governor three more, all for six-year terms.
- **Rate Increases Moratorium:** The moratorium on Duke Energy rate increases to pay for coal ash cleanup would expire in January 2015, versus December 2016 for which the House had advocated.
- **Coal Ash Pond Expansion:** The construction or expansion of coal ash impounds is banned, effective October 1st.
- **Risk Categories:** DENR is instructed, by the end of 2015, to divide coal ash sites into high, intermediate, and low-risk categories. High-risk sites must be excavated and placed in a lined landfill by the end of 2019 and intermediate sites by 2024. Low-risk sites can be “capped”, which is intended to keep water from carrying the ash into the water supply.

### NC Division of Employment Security

Lawmakers passed the last day of session SB42, Confidentiality of UC Information, which ensures that the NC Division of Employment Security will not violate federal regulations. The law prohibits Employment Security from making hearing notices of contested unemployment cases available to employment law attorneys. The U.S. Labor Department had issued an opinion finding that making the notices available would violate federal regulations regarding dissemination of confidential information, thereby jeopardizing the Employment Security’s federal dollars.

### Regulatory Reform

The House and Senate agreed upon a compromised regulatory reform package the last week of the legislative session. SB734, Regulatory Reform Act of 2014 contains wide-ranging provisions, primarily focused on environmental regulations. Provisions include:

- **State Regulations:** Bans regulators from passing any rules more stringent than federal minimum standards without the approval of state lawmakers.
- **Community Colleges:** Sets up training programs for beer brewing and allows community colleges to have beer at campus events.
- **Isolated Wetlands:** Authorizes developers to pave or build upon wetlands of up to 1 acre east of Interstate-95.
- **Environmental Management Commission:** Prohibits the commission from defining gravel with relation to stormwater rules.
- **Venus Flytraps:** Establishes the poaching of Venus flytraps a felony.
- **Park Speed Limits:** Allows state officials to waive the 25 mph speed limits that apply in state forests and parks for special events.
- **Engineered Plans:** Makes a number of changes in the way state and local government permit reviewers interact with professional engineers responsible for design of a proposed project.

### Drones

General Assembly members continued examination of the emerging unmanned aircraft industry and enacted restrictions North Carolina could place on drones. Legislation passed that prohibits anyone from conducting surveillance of a person, dwelling or private property without the owner’s consent, or making aerial photography without that consent. The new law allows for news gathering, and doesn’t apply to events in which the general public is invited.

### Looking Ahead: Legislators Hit the Campaign Trail

The General Assembly will return on January 14, 2015 for its next legislative session. In the interim, the 2014 election season is expected to be nothing short of lively. Speaker of the House Thom Tillis is running for US Senator Kay Hagan’s seat, and all NC House and Senate legislators will be competing for re-election to their districts. McGuire Woods will be actively watching all issues important to surveyors in the next session of the General Assembly.



*Kerri Burke is Vice President in the State Government Relations group for McGuire Woods Consulting in Raleigh, NC. She received a BS in Political Science from Old Dominion University, and attended the Indiana University School of Law. She has served as communications director for the NC Chamber, and has worked as a registered lobbyist and legislative intern.*

# NSPS Update

by Randy S. Rambeau, Sr., PLS

After attending the Areas 3 and 4 Governors meeting at the beginning of April, NCSS Executive Director, Christy Davis and I flew to San Diego for my first “official” meeting as your NSPS Governor. On Monday April 14th, Christy and I attended several committee meetings as observers, including the Education Committee where transferring community college credits into a four-year Geomatics degree, the NSPS student competition, and new certification programs for surveyors were all discussed. We also attended the Membership Committee meeting discussing the success of the dual membership program, which has brought NSPS members to 14,000.

On Tuesday, April 15th, Christy and I attended the NSPS General Membership meeting, followed by the Board of Governors meeting. The general membership meeting provided a broad overview of NSPS activities and financial standing. The Board of Governors meeting discussed a number of key issues including the elimination of the NSPS Board of Governors, keeping the NSPS three day meeting format, the inclusion of aligned professions in the NSPS annual meetings, creating a committee of NSPS Ambassadors, the makeup of the NSPS Executive Committee, and appointing an NSPS Audit Committee. The Governors then passed twelve motions generated from the above discussions to present at the NSPS Board of Directors meeting the following morning.

On Wednesday, April 16th, I attended the NSPS Board of Directors meeting as your North Carolina Director. President Pat Smith appointed several ad hoc committees and Secretary-Treasurer John Fenn presented his report. Additional reports were made by several guests. The motions passed the previous day by the Board of Governors were presented and passed, subject to a few minor amendments.

The legislative front continues to be a vital component of NSPS efforts supported by the NSPS leadership, Executive Director Curt Sumner, and the firm of John M. Palatiello & Associates, our Governmental Affairs consultant. We need to use our influence on members of Congress on a number of issues. One issue currently at the forefront is the U.S. Labor Department’s inclusion last year of survey technicians under the Davis-Bacon Act. This inclusion is contrary to the past fifty years of Federal policy. Our lawmakers should be encouraged to urge Labor Secretary Thomas Perez to reverse the decision to include survey technicians. Another issue is the funding of the 3DEP Program under the USGS umbrella. This program will provide funds to obtain current, accurate elevation data across the nation and, in particular, assist FEMA and its flood mapping efforts.

There are several items at the state and chapter level

that I would like to mention. They are as follows:

Thanks to the efforts of Christy, Rhonda, and Morgan, the fall 2013 edition of “The Tarheel Surveyor” won first First Place in the magazine category in the 2014 NSPS Excellence in Journalism Competition.

The 2015 NSPS and AAGS Scholarship Program is offering twelve scholarships totaling \$25,000.00. Applications are available on the NSPS website and are due by February 1, 2015. I would ask that you encourage young surveyors that are pursuing higher education to take advantage of this opportunity.

The 2015 Map Plat Design Competition is open and the criteria and entry form are also available on the NSPS website and the submittal deadline is also February 1, 2015. We have had a previous winner from North Carolina (Chad Howard – First Place in the 2013 Boundary/Cadastral Maps category) and we need a repeat winner in 2015.

Speaking of competition winners – thanks to the extra efforts of Benjy Brown and the Southeastern Chapter, we have the second Second place Place winner of the 2014 Trig-Star competition. The winner representing North Carolina is Benjamin Fawcett, of New Hanover High School, in Wilmington, NC. In conjunction with this award, Benjamin’s teacher won The the Richard E. Lomax National Teaching Excellence Award. Congratulations to both of these winners and thanks to Benjy and the Southeastern Chapter.

Again in the spring of 2015 there will be a student competition during the NSPS Spring Meeting. For the first time, the 2015 competition will feature two divisions, one for Associate’s degree programs and one for Bachelor’s degree programs. It would be awesome if North Carolina had a team (or multiple teams) participating in this competition.

One of the newer benefits offered by NSPS is the “PerksCard”. NSPS has partnered with the PerksCard program to offer its members discounted products and services at local merchants, rental cars, movie tickets, Walt Disney World, and discounted gift cards. It’s very easy to register using the link on the NSPS website.

Also a long-standing benefit about which I have heard many good things is the NSPS Exclusive Insurance Program through its endorsed provider: Assurance Risk Managers, Inc. It would be well worth your time to explore this program for both business and personal insurance needs.



Randy Rambeau has been the Geomatics Office Manager at McKim & Creed, Inc. in Raleigh since 1991. He attended NCSU and became a PLS in 1978, when he joined NCSS. Randy served as the NCSS Secretary/Treasurer (2009-2013) and is now serving as our NSPS Governor. “Surveyor Randy” co-authored the “Intersect” column in Professional Magazine (2006-2010) and was named the 2014 Surveyor of the Year at the 2014 Conference in Asheville.



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# The Learned Profession

*By Dr. Jerry W. Nave, PLS*

Recent events in North Carolina have brought the issue of the Learned (pronounced lur-nid) Profession to the forefront. As a result, Marion Sandlin, President of NCSS, appointed a committee to review the issue and to make a report and a recommendation to the NCSS Board of Directors. The appointed committee members consisted of professional surveyors with various academic backgrounds (from no college to advanced degrees). The committee's investigation consisted of reviewing current literature on the subject and current statute and case law at both the state and federal levels. *No one on the committee is an attorney and the information gathered in this endeavor should not be construed as legal advice.*

Part of the Learned Profession Committee's charge was an investigation of how not being labeled as "learned profession" might affect the professional surveyors of North Carolina. Recent events caused the Committee to investigate the North Carolina General Statute § 75, titled the "Unfair and Deceptive Trade Practices Act" (UDTP). UDTP, under the North Carolina law, allows for treble (triple) damages and attorneys' fees under certain circumstances. The UDTP was enacted by legislation to benefit consumers. As a result, the statute requires a three-part test to determine if a party can be sued under the act: 1) an unfair or deceptive act or practice occurred; 2) in or affecting commerce; and 3) which proximately

caused the injury to the claimant. Additionally, the UDTP requires the court to determine if the act or practice was "in or affecting commerce" before the court can determine if the act or practice was unfair or deceptive. The unfair and deceptive definition notes a practice is unfair when it offends established public policy or when the act or practice is "immoral, unethical, oppressive, unscrupulous, or substantially injurious to consumers" (UDTP). Accordingly, a party can be considered guilty of an unfair act or practice when the party engages in conduct amounting to an unfair assertion of the party's power or position. For an act or practice to be deceptive, it must have "the capacity or tendency to deceive;" however, proof of actual deception is not required as part of the statute. Deliberate acts of deceit or bad faith do not have to be shown, but the claimant must show that the act or practice possessed the tendency or capacity to mislead or create the likelihood of deception. Additionally, it is not required that the party claiming deception actually relies on the deception to prevail. While bad faith is not required under the statute, good faith cannot be a defense. Because an act or practice still has the capacity to deceive, regardless of the presence or absence of good faith on the part of the offending party, the intent of the party is irrelevant. The UDTP statute includes an exemption for the learned professions that provide professional services and activities. However, the act does not define what professions are exempt. Therefore, it has been left to the courts of North

Carolina to define what constitutes a learned profession.

Recently, a UDTP case in North Carolina determined whether North Carolina surveyors are members of a learned profession. In this case, the court addressed the issue of whether surveying was a learned profession as applicable to North Carolina General Statute § 75 UTDP. When the court asked the defense “[D]o you have any cases that say surveyors are a learned profession as included in section (d) of 75-1.1?” The defense answered that they did not have any cases in North Carolina but had cases involving engineers and architects. The defense also argued that engineers and surveyors were licensed under the same board and that surveying was the same as engineering (NCBEES). The court responded that “[e]ngineers have a four year degree” and, therefore, are a learned profession. Furthermore, the court clarified that surveying did not require a four-year degree and, therefore, could not seek the protection of the learned profession clause of the UTDP.

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*...it has been left to the courts of North Carolina to define what constitutes a learned profession.*

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The committee next sought to determine the qualification of a Learned Profession. In reviewing *Garden v. Frier*, a case heard by the Florida Supreme Court, the committee found that the court defined a “profession”, in the context of the professional malpractice statute, as requiring a four-year degree and that surveying became a profession when the state licensing requirements for all future admittees required a four-year undergraduate or graduate degree. Furthermore, the court stated that there could be no alternative method of admission for licensing than the four-year degree. If the four-year degree was dropped or lowered to less than a four-year degree, then surveying would not be considered a protected profession. In the State of Kentucky case of *Gardiner Park Development, LLC et al. v. Matherly Land Surveying, Inc.* (2003), the Court of Appeals stated that, if the surveyor conducted “engineering” surveying, the one-year statute of limitations would apply because engineering had a four-year degree standard. In looking at boundary-related services, the court found that, if work that only a land surveyor could perform (boundary work) caused the damages, the one-year statute would not apply because land surveying statutes did not require a four-year degree, and land surveying was not a learned profession. The committee also reviewed several federal cases. In looking at the Fair Labor Standards Act (FLSA), a learned professional

exemption applied if the primary duty of the employees’ work required advanced knowledge in the field of science or learning that required prolonged courses in specialized intellectual instruction. Acquisition of this specialized knowledge cannot be with a high school education alone.

In 2008-2009, surveyors in Maine discovered that the U.S. Department of Labor under the Fair Labor Standards Act (29 C.F.R. 541.301), declared surveyors were not exempt as learned professionals because Maine did not require a four-year degree for licensure. The Department of Labor stated that, in a learned profession, “[t]he typical symbol of professional training and the best prima facie evidence of this possession is, of course, the appropriate academic degree, and in these professions an advanced academic degree is a standard (if not universal) prerequisite”. In other words, to be a member of a learned profession, one must have the “appropriate academic degree,” and an “advanced academic degree” is standard. This was further clarified in a Washington State case where the argument was whether a four-year degree had to be in discipline. The Ninth Circuit Court in *Solis v. State of Washington, Department of Social and Health Services* attempted to clarify the learned professional exemption “special intellectual instruction.” The Ninth Circuit explained, “[t]he dispositive question here is not whether DSHS requires more than a degree ‘in any field,’ but whether it requires a ‘prolonged course of specialized intellectual study’”. The Ninth Circuit stated that, to satisfy the learned profession exemption’s educational requirement, the specialized course of study must be prolonged and relate directly to the employee’s position. To summarize 29 C.F.R. 541.301, an exempt profession requirement to have a “prolonged course of specialized intellectual instruction” meant that the learned professional exemption was limited to professions where specialized, academic training was a standard prerequisite for entering the profession. The courts and literature describe that the best evidence that a profession meets this requirement is that it possesses the appropriate academic degree. It is not available for occupations conducted with only general knowledge acquired from an academic degree in any field, knowledge acquired through an apprenticeship, or training in the performance of routine mental, manual, mechanical, or physical processes.

In conclusion, the research by the Learned Profession Committee determined that a learned profession requires education beyond that of a high school diploma and an apprenticeship. Additionally, those professions labeled as “learned” require either a bachelor’s degree or higher in the discipline of the profession and involve reporting to a regulatory body that licenses the individual through examination as a requirement for entry into the profession.

The available material reviewed by the Learned Profession Committee has determined that a learned profession in both federal and states' administrative, statute, and case laws requires a four-year degree as minimum education.

*...recent events in North Carolina have shown the vulnerability of the surveying profession to lawsuits...*

The harm to the surveying profession in North Carolina by not being part of the learned profession is clear. Without the protection of a four-year degree as a requirement for entry into surveying, the profession is open to the possibility of lawsuits similar to those seen in North Carolina, Florida and Kentucky. Additionally, recent events in North Carolina have shown the vulnerability of the surveying profession to lawsuits under Chapter 75-1.1 Unfair and Deceptive Trade Practices Act (UDTP). Therefore, the Learned Profession Committee

recommends to the Board of Directors that a proposed change to requirements for licensing be submitted to the membership of the North Carolina Society of Surveyors. The committee recommends that the minimum educational requirement be a Bachelor of Science degree in Surveying or equivalent curriculum. Additionally, to bring the surveying profession into closer relationship to that of engineering, the Committee recommends that the required experience for licensure be a minimum of four years. Additionally, the requirement of a four-year degree could provide the necessary protection of the learned profession clause of the UDTP and encourage the continued growth of the surveying profession in the 21st century.



*Dr. Jerry Nave is an assistant professor of Geomatics at NCSU where he teaches courses in boundary location and legal principles, land systems, geodetic surveying, satellite positioning, ethics and professionalism and subdivision design. He earned his BS and MS in Surveying and Mapping and his doctorate in Educational Leadership and Policy Analysis at East Tennessee State University. He received his PLS in 1993 and has over 21 years of experience in the private and public sectors.*

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# Once Upon a Time

by Kenneth Mills, PLS

In early 1975, I was studying in earnest, trying to get ready to take my first exam to be a licensed Professional Land Surveyor. I would come home from working all day in the field, grab a bite to eat and hit the books.

I read all the books I could buy or borrow and placed markers at locations I thought important so I could easily find the information I may need during the exam. I had sample exam questions and I studied every night. I worked every math question I came across, many of which had me thinking about how to get the correct answer. I didn't stop until about 10:30pm when I got ready for bed.

Saturdays and Sundays were spent studying most of the day. My wife, bless her, made me stop studying once in a while to go out for some fresh air and exercise. She was also my main supporter.

At the time, I had an electronic calculator that I used to calculate the problems. This simple instrument was allowed during the exam and I was very good with it. No programmable calculators were allowed. The only problem with this calculator was that it did not have a square root key. I did have a mathematical formula to use to get square roots and I practiced this formula quite often.

One week before the exam, my boss and one of my mentors, Bruce Small, loaned me a new HP-35. This was a marvel of a calculator. It not only had a square root key, it had the sine, cosine and tangent buttons. These three keys saved me from carrying my book of tables which had the sine, cosine and tangent numbers for each second of arc. I had one week to learn how to use this new calculator, which used Reverse Polish Notation. I now have used this type of notation my entire career so I prefer this type of calculator today.

At the time, in the state of Florida, both days' exams were combined in the same weekend. On Friday, the national exam was given and, on Saturday, the state-specific exam was given. We didn't have to take the first exam and then wait a year or two to take the second exam.

I took four reference books, some reference papers and the calculator to the exam. I left on Thursday to drive to the location of the exam, which was in the middle of the state. I don't remember in what town the exam was located. I got a room in the motel next to the building where

the exam would be held the following morning. I had a good meal and went to bed early. I didn't open any of the books for a final review. I figured if I wasn't prepared by then, a couple more hours of studying would not help. I felt I was well prepared for anything I would encounter.

The next morning, I was at the exam site a little early and got a table located near the front of the room. I didn't have to worry about getting a table near the front of the room because everyone took the tables in the rear first, just like in church. There were a lot of people there to take the exam. I learned later that there were 251 people ready to take the exam.

Each table was set up so two people could occupy one table. One at each end of the table with room enough to spread out all of their reference material. Since I was one row from the front, I had one table all to myself.

Once I placed my reference material on the table, I sat down and began looking around at the other people coming into the room to take the exam to see if I recognized anyone. There was a party chief from the company I worked for taking the same exam, but I never saw him. One person showed up with a trunk full of books and reference materials. He sat at a table behind mine and, by the time the exam was ready to begin, he was surrounded by stacks of books.

One person I saw worried me for a while. He was the head of the surveying department at the local university. I had attended a couple of seminars he presented and I knew he knew his surveying math and laws. Since the exam was graded on the curve, I knew his presence would make the grading curve much steeper.

Both of my mentors, Bruce Small and Gene Stoner, told me to read all of the problems in the exam before starting to answer the first question. They said to mark the questions I knew the answers to. Then to mark the questions I thought I knew the answers to. The really hard questions, which I wasn't sure about, were to be left for last.

I spent about 15 minutes reading the entire exam and marking the questions as noted above. About one third were simple, and I knew the answers would not take any time to get. The next group would take a bit of study. I discovered only one question that was much harder and would take a long time to answer.

While I was concentrating on answering the questions, every now and again someone would turn in their exam and leave. I couldn't believe they finished so quickly. I learned later that some became physically sick because of the intensity of the exam. Others turned in their exam because they could not answer the questions. Then there were a number of people who came to the

exam just to see what it was going to be like. I couldn't understand why someone would waste their time and money just to see what it was like. I was there to pass the exam and to become a Professional Land Surveyor.

Lunch came and went and, at about two o'clock, the head of the university surveying department turned in his exam. At that time, I had answered enough questions to give me a 70% score if the exam was graded on a straight line. I took a deep breath and began on the last and hardest question. When the examiners called a halt at 5:00 pm, I had almost completed the last question. I knew I would get partial credit for the work I put in to that last question, so I felt good about my first day's exam.

I stopped to get some supper before heading to my motel room for the night. By the time I reached my room, I ached all over. I remained so tense during the exam all day that every muscle in my body ached. I soaked for a while in a hot bath, then collapsed into the bed. I must have slept very deeply because I didn't move until the alarm clock went off in the morning.

After a good breakfast, I was more than ready for the second day's exam. Before the examiners gave the go ahead, they reported that many of the people missing for the second day were unable to take the second exam and had gone home. I followed the same steps I did the first day and was on my last

question when the day ended. It was a great relief to finish the exam and be heading home. I got home early enough to relax before going to bed and heading to work the next day.

About two months later, I went home after work, parked in my regular place behind my wife's car and went in the house. When I saw her she was smiling and asked how I felt. I was a bit confused, "Fine. What's up?" I answered. "Didn't you see the sign?" she asked.

"What sign?"

"The one I put on the back of my car. Didn't you see it?" she asked. "Go out and get the sign off my car."

I did what I was told. The sign read, "Congratulations Professional Land Surveyor!"

I passed! I found out later that, out of the 251 people who began the exam, only 50 passed. Needless to say, I was very pleased. On a side note, that one exam was the hardest test I've ever taken. Every exam I've taken since was a walk in the park compared to that licensing exam.



*Ken Mills became a PLS in 1975. He has been an active member of NCSS, serving three terms as the Western Chapter NCSS president (1989, 2005-2007, 2009-2010). He served as the NCSS President in 1998. Mills co-authored Following in their Footsteps with Otis A. Jones. He has written for American Surveyor Magazine and is a columnist for Madison County's News-Record & Sentinel newspaper.*

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# North Carolina Railroad Company Records Surveys of Historic Centerline

by Kristian Forslin, GISP, PLS

The North Carolina Railroad Company (NCR), a long-time supporter and Sustaining Member of NCSS, recently recorded a series of survey plats in 11 counties that provide present-day survey accuracy of the centerline of its rail corridor that was set in 1856, when the first train ran between Goldsboro and Charlotte, and in 1858 when the first train ran over the Atlantic and North Carolina Railroad (merged with NCR in 1989) between Goldsboro and Morehead City. The centerline of the two hundred foot wide (typical) rail corridor was established under the Charter of each railroad and set the centerline where the tracks were located on the day the first train ran from one end to the other. However, over the years, rail improvements necessitated the relocation of some tracks, but the centerline of the corridor as established under the Charter does not move. NCR found it necessary to document the 45 intermittent miles of centerline in the public record that are not now identified by tracks. These surveys will be a great resource for surveyors who require the locations of the centerline of the NCR when completing an adjacent

boundary survey or other work near the rail corridor.

NCR is undergoing a lengthy process to document the historical centerline as well as monument the corridor through all 16 Counties and 40 municipalities through which it passes. NCR will combine this information with LiDAR data of existing track centerline, that is still in the original location, and ultimately place geodetic monuments offset 100' from the historical corridor centerline every half mile (where feasible) on both sides of the corridor for the entire 317 mile length. The project is expected to be completed by 2015. By using these maps in the course of their work, surveyors can better identify, with accuracy, the corridor boundary without the need to enter the rail corridor to perform their work. This, in turn, will often eliminate the need to perform field work inside the right of way and the associated process for right of entry permits and, therefore, will allow surveyors to perform their work more safely.

NCR has provided a reference table and a map detailing the surveys, as well as their respective county of recordation and book/page numbers. All surveys are indexed under "North Carolina Railroad Company" and bear a title that is respective of the railroad milepost range that the survey covers.



Kristian Forslin, GISP, PLS is the GIS Coordinator for the NC Railroad Co. and has 20 years of experience in the geospatial industry as a project manager and GIS consultant. He has served on a number of boards and committees in the geospatial community, including Carolina URISA for over 10 years. He has also authored numerous articles on surveying, railroad, geospatial, and damage prevention matters.

North Carolina Railroad Company - Historical Centerline Surveys

Phase	Segment By MP	Segment Description	County 1	County2	Recorded	Date	Book	Page
A1	H-021.05 to H-021.85	Downtown Burlington Alamance County	Alamance		X	6/11/2014	76	266
A1	H-047.91 to H-048.57	Funston Curve Orange County	Orange		X	6/4/2014	112	196
A1	H-049.69 to H-050.39	Western Durham County	Durham	Orange	X	6/5/2014	193	157
A1	H-051.21 to H-051.91	US 501 Crossing Durham County	Durham		X	6/6/2014	193	158
A1	H-056.92 to H-057.49	North of Durham Yard Durham County	Durham		X	6/7/2014	193	159
A1	H-059.01 to H-059.32	South of Durham Yard Durham County	Durham		X	6/8/2014	193	160
A1	H-063.22 to H-064.92	HWY 54 Crossing Durham County	Durham		X	6/9/2014	193	161-162
A1	H-072.55 to H-072.99	Near Cary Station Wake County	Wake		X	5/30/2014	2014	00698
A1	H-087.92 to H-088.95	I-40 Crossing near Garner, Wake County	Wake		X	5/30/2014	2014	00699
A1	H-091.91 to H-092.18	Eastern Wake County	Wake		X	5/30/2014	2014	00700
A1	H-093.30 to H-093.50	Western Johnston County	Johnston		X	5/29/2014	80	20
A1	H-110.70 to H-112.30	Selma Yard Site Johnston County	Johnston		X	5/29/2014	80	21
A2	M-283.71 to M-284.89	Southern Railway Co. Yard at Eugene Street Crossing	Guilford		X	6/11/2014	186	134
A2	M-286.53 to M-287.23	Pomona Yard at Holden Road Crossing	Guilford		X	6/11/2014	186	135
A2	M-287.87 to M-288.10	Transition near Pomona Heights Subdivision	Guilford		X	6/11/2014	186	136
A2	M-289.44 to M-291.37	Hilltop, N.C. Guilford County	Guilford		X	6/11/2014	186	137-138
A2	M-292.44 to M-297.82	East of Jamestown, N.C. Area	Guilford		X	6/11/2014	186	139-143
A2	M-298.97 to M-299.86	Near Edgeworth St & W. Broad St in High Point	Guilford		X	6/11/2014	186	144
A2	M-300.83 to M-301.91	Near the Oak Hill Subdivision Area in Guilford County	Guilford		X	6/11/2014	186	145
A3	M-303.39 to M-305.33	Davidson County	Davidson	Randolph	X	7/1/2014	61	79-81
A3	M-307.13 to M-314.04	Davidson County	Davidson		X	7/1/2014	61	82-88
A3	M-314.29 to M-316.16	Davidson County	Davidson		X	7/1/2014	61	89-91
A3	M-316.75 to M-321.56	Davidson County	Davidson		X	7/1/2014	61	92-96
A4	M-330.79 to M-332.99	Rowan County	Rowan		X	7/1/2014	9995	7689
A4	M-337.27 to M-338.82	Rowan County	Rowan		X	7/1/2014	9995	7690
A4	M-339.57 to M-347.48	Rowan County	Rowan		X	7/1/2014	9995	7691
A5	M-350.12 to M-350.27	Cabarrus County	Cabarrus		X	7/9/2014	66	43
A5	M-352.65 to M-353.81	Cabarrus County	Cabarrus		X	7/9/2014	66	44
A5	M-355.16 to M-355.57	Cabarrus County	Cabarrus		X	7/9/2014	66	45
A5	M-356.76 to M-357.39	Cabarrus County	Cabarrus		X	7/9/2014	66	46
A5	M-357.95 to M-358.14	Cabarrus County	Cabarrus		X	7/9/2014	66	47
A5	M-358.88 to M-359.32	Cabarrus County	Cabarrus		X	7/9/2014	66	48
A5	M-360.57 to M-361.42	Cabarrus County	Cabarrus		X	7/9/2014	66	49
A5	M-365.43 to M-368.45	Cabarrus County	Cabarrus	Mecklenburg	X	7/9/2014	66	50-53
A5	M-365.43 to M-368.45	Mecklenburg County	Mecklenburg	Cabarrus	X	7/9/2014	56	591-595
A5	M-371.20 to M-371.80	Mecklenburg County	Mecklenburg		X	7/9/2014	56	596-597
A5	M-374.77 to M-376.42	Mecklenburg County	Mecklenburg		X	7/9/2014	56	598-601

Table 1: Although these surveys can be found in courthouse records, NCR has provided a reference table of recorded NCR historic centerline surveys.

# North Carolina Railroad Company- Historical Centerline Surveys

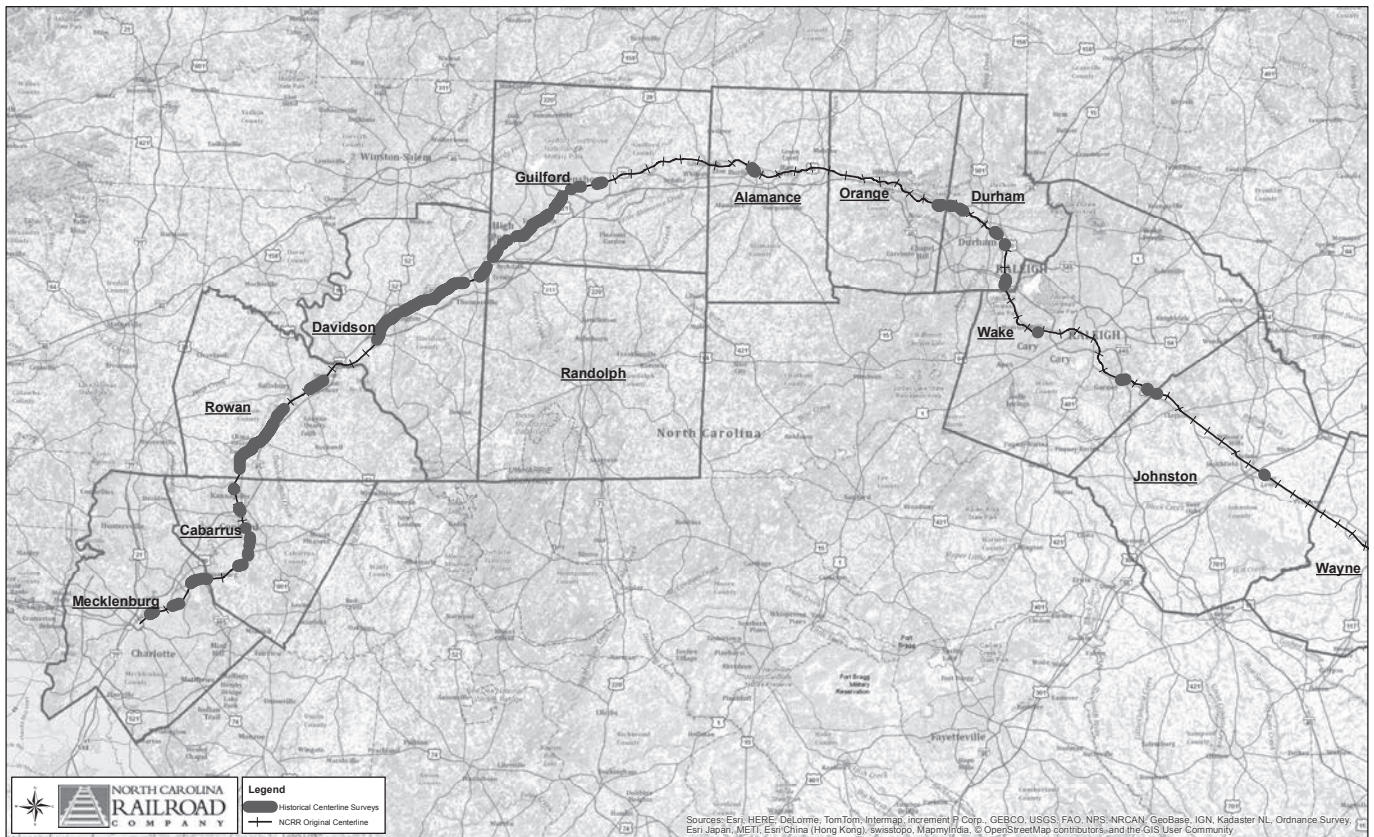


Fig. 1: Locations and coverage area of recorded NCRR historic centerline surveys (only certain sections of the NCRR centerline were surveyed in this manner)

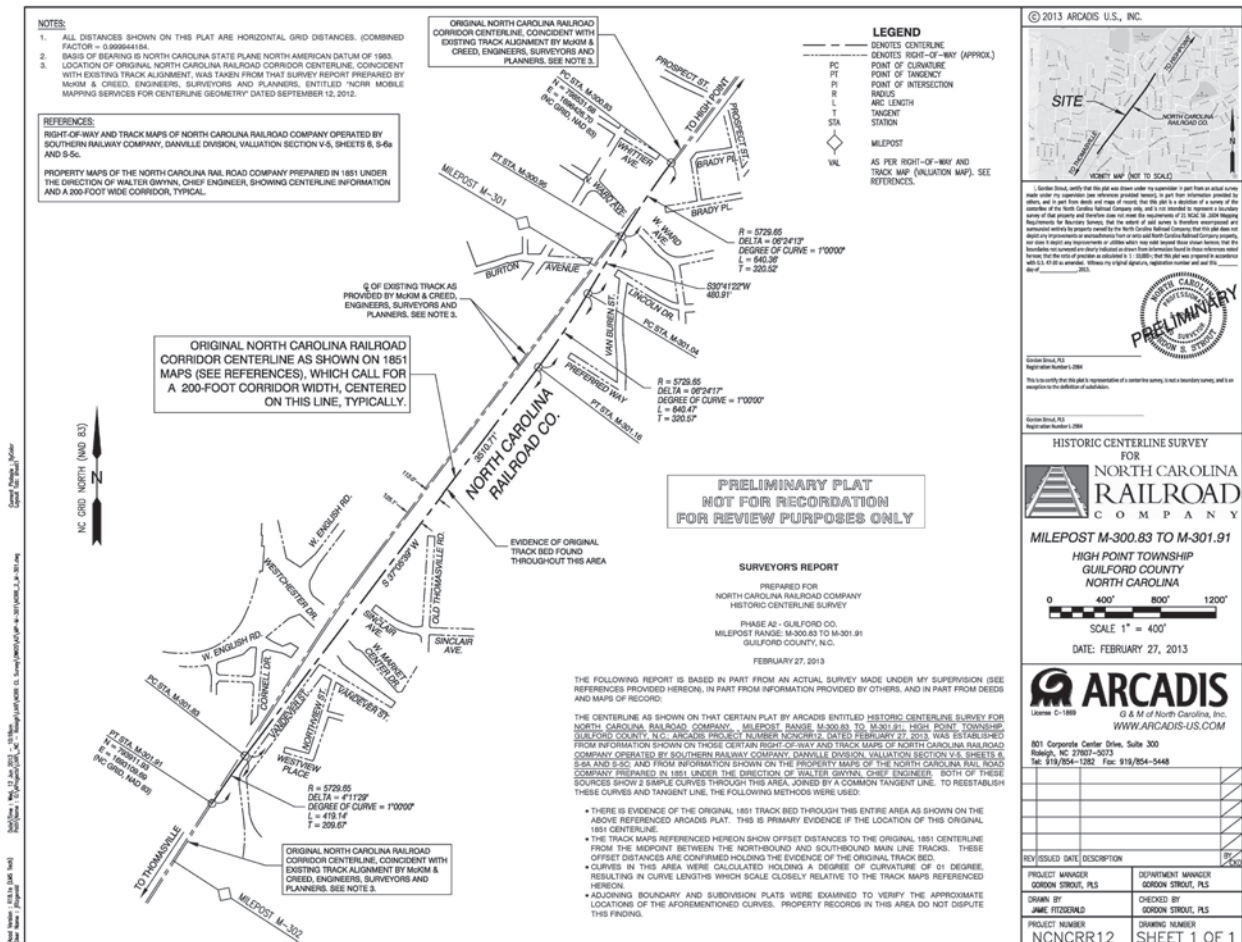


Fig. 2: Example of recorded NCRR centerline survey



# Which NC GS 47-30 (f)(11) Certificate to Use?

by Thomas W. Morgan, PLS

If a survey is to be recorded in the Office of the Register of Deeds, it will have to be certified by the surveyor under whose supervision the survey was prepared as to one of the categories found in NC GS 47-30(f)(11).

## NCGS 47-30 (f)(11)

Notwithstanding any other provision contained in this section, it is the duty of the surveyor, by a certificate on the face of the plat, to certify to one of the following:

- a. That the survey creates a subdivision of land within the area of a county or municipality that has an ordinance that regulates parcels of land;
- b. That the survey is located in a portion of a county or municipality that is unregulated as to an ordinance that regulates parcels of land;
- c. Any one of the following:
  1. That the survey is of an existing parcel or parcels of land and does not create a new street or change an existing street;
  2. That the survey is of an existing building or other structure, or natural feature, such as a watercourse; or
  3. That the survey is a control survey.
- d. That the survey is of another category, such as the recombination of existing parcels, a court-ordered survey, or other exception to the definition of subdivision;
- e. That the information available to the surveyor is such that the surveyor is unable to make a determination to the best of the surveyor's professional ability as to provisions contained in (a) through (d) above

However, if the plat contains the certificate of a surveyor as stated in a., d., or e. above, then the plat shall have, in addition to said surveyor's certificate, a certification of approval, or no approval required, as may be required by local ordinance from the appropriate government authority before the plat is presented for recordation. If the plat contains the certificate of a surveyor as stated in b. or c. above, nothing shall prevent the recordation of the plat if all other provisions have been met.

This certification must be on the face of the plat and, if not included in the surveyor's certification defined in NC GS 47-30(b), it must be signed separately by the surveyor. The certification must contain the wording found in the statute. A General Statute reference number is not an acceptable substitute.

1. A plat certified by the wording in NC GS 47-30 (f)(11)a is any plat that is subject to a local ordinance that regulates the division of land and said ordinance will be authorized by NC General Statutes such as:
  - NC GS § 143-215.5 Water Supply Watershed Protection Ordinance
  - NC GS § 153A-335 "Subdivision" defined (county)
  - NC GS § 160A-376 Definition (municipal)

2. A plat certified by the wording in NC GS 47-30 (f)(11)b is any plat of land located within an area that is unregulated as to the division of land. Even though a parcel is in an unregulated area, if there is a public street being created, that street plan must be approved by the Division of Highways in DOT in accordance with the NC Minimum Subdivision street standards and be certified by the Review Officer under the requirements found in NC GS § 136-102.6.

3. A plat that is certified under NC GS 47-30 (f)(11)c must meet requirements of section 1, 2, or 3. Sections 1 and 2 are for maps that report the existing status and features of the parcel or parcels. When the surveyor adds a proposed easement or, for that matter, anything proposed to a plat, the certifications found in 47-30(f)(11)c 1 or 2 are no longer appropriate certifications. A plat that is certified under NC GS 47-30 (f)(11)c 3 is for a control survey.<sup>1</sup>

Remember, a plat certified under NC GS 47-30 (f)(11)c. 1 or 2 is to reflect the existing status of the parcel.

4. A plat certified as a NC GS 47-30 (f)(11)d is any plat that contains proposed changes to a parcel that is in an area that regulates the division of land but is of another survey category that is not subject to a subdivision ordinance.

Some examples are:

- a. Recombination of parcels
- b. Lots greater than 10 acres
- c. Acquisition of strips of land for public transportation



system corridors

- d. Division of no more than 2 acres in no more than 3 lots.
- e. The division of land among the heirs to settle an estate.
- f. Assigning of easements, conditions or restrictions to an existing parcel

Note: A plat with a proposed boundary change or condition change in a regulated area of the county is either: NC GS 47-30 (f)(11) a: "That the survey creates a subdivision of land within the area of a county or municipality that has an ordinance that regulates parcels of land;" or, NC GS 47-30 (f)(11) d: "That the survey is of another category, such as the recombination of existing parcels, a court-ordered survey, or other exception to the definition of subdivision."

5. A plat certified as a NC GS 47-30 (f)(11) e is a plat that the surveyor has some question as to the status of the survey in respect to the previous section of this paragraph. This certification entrusts the decision to the planning department.

**Other Items to Note:** A plat certified as an "a", "d" or "e" is required to be presented to the appropriate government authority as required by local ordinance. The local government authority is to examine the plat as submitted, to determine *if it is a subdivision as defined in the appropriate statute or if it is a survey of another category.*<sup>2</sup> "If the plat contains the certificate of a surveyor as stated in a., d., or e. above, then the plat shall have, in addition to said surveyor's certificate, a certification of approval, or no approval required, as may be required by local ordinance from the appropriate government authority before the plat is presented for recordation."<sup>3</sup>

The surveyor has the duty to know what information is existing and what information is proposed. He also has a duty to note on the plat the identification of all reference

sources.<sup>4</sup> If the map element is proposed, the surveyor should mark that element proposed on the plat to be in compliance with 21 NCAC 56 .1602(f). Under North Carolina Board of Examiners for Engineers and Surveyors rule: 21 NCAC 56 .0701 (d) A licensee ...: (1) Shall be objective and truthful in all professional reports, statements or testimony. The licensee shall include all relevant and pertinent information in such reports, statements or testimony.<sup>5</sup>

The following categories of plats are not subject to NC GS 47-30:

1. Boundary plats of areas annexed by municipalities and plats of municipal boundaries<sup>6</sup>
2. Registration of highway right-of-way plans provided for in G.S. 136-19.4 or G.S. 136-89.184, and the registration of roadway corridor official maps<sup>7</sup>
3. Plats and plans for condominium declaration<sup>8</sup>
4. An 8½" by 14" plat that is attached to another instrument and is conspicuously labeled "THIS MAP IS NOT A CERTIFIED SURVEY AND HAS NOT BEEN REVIEWED BY A LOCAL GOVERNMENT AGENCY FOR COMPLIANCE WITH ANY APPLICABLE LAND DEVELOPMENT REGULATIONS."<sup>9</sup> The surveyor, nor staff under his supervision, should ever apply this statement to a certified survey.

In closing, remember the surveyor should only use 47-30(f)(11)c statements when reporting existing information or a control survey.



Tom Morgan graduated from NC State University in 1971 with a BA in Geology, and received his PLS in 1978. He started Brunswick Surveying in Holden Beach, NC in 1979, which he sold to Withers & Ravenel, Engineers, Surveyors & Planners in 2006. He has been the Land Records Manager for the NC Secretary of State since January 2008.

<sup>1</sup>**Control Survey** - (within the context of 47-30 (f)(11) A survey which provides horizontal or vertical position data for support or control of subordinate surveys or for mapping. It is executed with greater precision and accuracy than is required for dependent surveys. A control survey may provide information by which dependent surveys may tie to a regional survey framework (NC Grid or Lat Lon) or by which local surveys may tie to governmental or quasi-governmental surveys, i.e. state boundaries, county boundaries, and chartered railroad centerlines. A control survey is not used to define an individual's boundary or conveyance.

<sup>2</sup>NC G.S. § 153A-335 (county) or NC G.S. § 160A-376 (municipal)

(a) For purposes of this Part, "subdivision" means all divisions of a tract or parcel of land into two or more lots, building sites, or other divisions when any one or more of those divisions are created for the purpose of sale or building development (whether immediate or future) and includes all division of land involving the dedication of a new street or a change in existing streets; however, the following is not included within this definition and is not subject to any regulations enacted pursuant to this Part:

- (1) The combination or recombination of portions of previously subdivided and recorded lots if the total number of lots is not increased and the resultant lots are equal to or exceed the standards of the county

as shown in its subdivision regulations.

- (2) The division of land into parcels greater than 10 acres if no street right-of-way dedication is involved.
- (3) The public acquisition by purchase of strips of land for widening or opening streets or for public transportation system corridors.
- (4) The division of a tract in single ownership the entire area of which is no greater than two acres into no more than three lots, if no street right-of-way dedication is involved and if the resultant lots are equal to or exceed the standards of the county as shown by its subdivision regulations.

<sup>3</sup>NC GS 47-30 (f)(11)

<sup>4</sup>21 NCAC 56 .1602(f) SURVEY PROCEDURES

<sup>5</sup>21 NCAC 56 .0701 RULES OF PROFESSIONAL CONDUCT (d)(1)

<sup>6</sup>NC GS 47-30 (j)

<sup>7</sup>NC GS 47-30 (l)

<sup>8</sup>NC GS 47C-2-109

<sup>9</sup>NC GX 47-30(n)

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# Parol Agreements and the Statute of Frauds in North Carolina

by Kristopher M. Kline, PLS, GSI

If two adjoining landowners are on good terms with each other and decide that the boundary line between them isn't in a convenient location, they might decide to agree between themselves to "move the boundary line" to a new location more advantageous to both parties. This seems to be a fine example of reasonable people cooperating to improve the value and utility of their land. This testament to good intentions, whether executed purely as a parol (verbal) agreement, or drafted with the aid of a surveyor, can become a minefield of unanticipated problems to trap the unwary.

*Clark on Surveying and Boundaries* summarizes some of the inherent problems with boundary line agreements: "To the layman there would appear to be no reason why two individuals who own adjoining properties could not agree between themselves... There are, however, three legal obstacles to be overcome before the law will recognize such informal agreements on boundaries... The first difficulty arises out of the English Statute of Frauds... The second obstacle concerns the rights of innocent third parties, who would be dealing with either of the agreeing landowners, without knowledge of their secret agreement. The third problem is the legal doctrine of "Constructive Notice". All states have methods of recording or registering deeds or probating wills. Other parties are legally entitled to view the recorded documents to ascertain their rights and these records are binding upon everyone..."<sup>1</sup>

It is entirely too easy for the surveyor to mistake the status of the apparent landowners in these situations. In addition to the issues mentioned above, there may be several individuals who hold title to each tract. Fractional interests in the land, existing easements along the boundary, or lease agreements on either tract may also complicate any agreement. Depending on jurisdiction, the status of individuals as tenants in common, co-tenants, or spouses with rights of survivorship could undermine the legitimacy of an agreement. In the various disputes reviewed for this article, there was little discussion to indicate that the rights of spouses or co-tenants to the lands in question were considered by

the parties attempting to perpetuate the line agreements.

## The Statute of Frauds

Originating in England in 1677, the statute of frauds recognizes the dangers of reliance on human memory as a repository for long-term agreements. While this statute originally addressed numerous types of contracts, the portions relevant to property boundary disputes are included in Section 4 of the original English text: "...or upon any contract for sale of lands, tenements or hereditaments, or any interest in or concerning them..."<sup>2</sup>

This statute was an attempt to target certain types of transactions that were as problematic as they were critical to the smooth functioning of society. It would matter little whether the problems were due to mistaken memory or deliberate manipulation of circumstances for personal gain. In a more general sense, the modern focus on written records reflects a continuing concern with the same basic problem – perpetuation of accurate documentation of past events.

N.C.G.S. 22-2 embodies the North Carolina version of the original English statute of frauds:

*"Contract for sale of land; leases.*

*All contracts to sell or convey any lands, tenements or hereditaments, or any interest in or concerning them, and all leases and contracts for leasing land for the purpose of digging for gold or other minerals, or for mining generally, of whatever duration; and all other leases and contracts for leasing lands exceeding in duration three years from the making thereof, shall be void unless said contract, or some memorandum or note thereof, be put in writing and signed by the party to be charged therewith, or by some other person by him thereto lawfully authorized."*

Note that this statute encompasses not only the sale of land in fee simple absolute, but also conveyance of easements, mineral estates, and mineral lease agreements.

In *Haddock v. Leary*, the North Carolina courts emphasize the critical importance of a deed in any claim of title: "There is no question that, generally where a person enters into land under a claim of title thereto by deed, his entry and possession are referred to such title, and he is deemed to have a seizin of the land coextensive with the boundaries stated in his deed, where there is no open adverse possession of any part of the land so described in any other person."<sup>3</sup> On a more general note, most court rulings dealing with boundary disputes of any type include verbatim segments of the relevant portions of the controlling deed descriptions.

## Parol Agreements

It is well established in most jurisdictions that a parol agreement attempting to "move" an existing boundary line



(where that boundary line is not to some degree in doubt or dispute) conflicts with the statute of frauds. Individual state jurisdictions vary somewhat with regard to the level of uncertainty that must exist before an agreement becomes valid. In the cases reviewed, the conflict with this statute was by far the most common issue raised when line agreements were later challenged in court.

**Andrews v. Andrews** reinforces the principle that some level of uncertainty is required to validate a parol agreement. This ruling further complicates the issue by introducing elements of possession or acquiescence. “...A multitude of jurisdictions hold that an uncertain and disputed boundary line may, under certain circumstances, be fixed permanently by parol agreement, if accompanied by sufficient acquiescence and possession, but where there is no uncertainty as to the boundary line, a parol agreement fixing a boundary line in disregard of those fixed by the deeds is void under the Statute of Frauds, as it amounts to a conveyance of land by parol...”<sup>24</sup>

In those circumstances where the boundary is truly disputed and uncertain, the courts have developed a rationale to allow the circumvention of the statute of frauds. In this situation, the property owners hold up their respective deeds as the source of title and the parol agreement is recognized as a clarification of the vague or uncertain description. In other words, no title is transferred and the courts are merely clarifying an ambiguity. However, this line of reasoning is not available if the line can be fixed with certainty.

#### Agreement that extends Beyond the Disputed Area

Another complication arises when, despite some uncertainty as to the true location of the boundary line in question, the landowners mark the agreed-upon line in a location which is at odds with any possible interpretation of the description creating the line. It is generally held that this attempt to move the line by agreement beyond any legitimate interpretation of the muniments of title would then constitute a transfer of title and become subject to the statute of frauds.

A relevant principle applied in the interpretation of deeds states that extrinsic or parol evidence may at times be applied to clarify or explain an ambiguous description. However, extrinsic evidence cannot enlarge, amplify, or change the meaning of the writing. Therefore, a parol agreement will not be permitted to contradict a description beyond any reasonable interpretation of its limits as spelled out in the document.

This premise is admirably stated in **McDaris v. Breit Bar “T”**, where, the court noted: “Parol evidence is admissible to fit the description to the land...Such evidence

cannot, however, be used to enlarge the scope of the descriptive words. The purpose of parol evidence is to fit the description to the property, not to create a description....”<sup>25</sup>

#### Legitimized by Circumstance

The boundary line agreement may be a legitimate option at times, but the various courts seem to prefer a sufficiency of evidence of possession to the agreed upon line so that the “agreement” is also strengthened by visible possession or apparent acquiescence as mentioned in the N.C. decision **Andrews v. Andrews** (cited previously). Although the legal basis for boundary line agreements is generally found in common law principles rather than in statutory law, claims of this type are more likely to be upheld by the courts if enough time has elapsed to satisfy the individual state statutory requirements for adverse possession.

Estoppel is another legal principle which may be invoked by the courts in order to validate an otherwise questionable agreement. The N.C. ruling **Smith v. Digh** appears upon casual inspection to be an issue only of boundary line agreement, but upon careful reading also contains elements of estoppel. This case is perhaps of particular interest to our profession because it appears that the surveyor mentioned in this analysis made every effort to make this agreement binding, even going so far as to have the map notarized and recorded in the county courthouse. It is also uncontested in this case that some level of doubt existed as to the true location of the line. The opinion notes that: “Her testimony tended to show the following: A controversy arose in June 1968, or earlier, between the parties as to the true location of the boundary line between their properties. A survey and a map were made, and on 22 June 1968 plaintiff signed an agreement on the map which read: ‘North Carolina Burke County

We, Ralph F. Digh and Mrs. Beulah Smith, do affirm that the ‘agreed line’ as noted on this map is in accordance with our agreement and that the property line between us shall hereafter be this ‘agreed line.’ I, Ralph F. Digh, will not claim any property south of this line; and, I, Mrs. Beulah Smith, will not claim any property north of this line.’ This agreement was also signed by defendant Ralph F. Digh on 22 June 1968”

Despite the clear attempt by the surveyor to responsibly resolve the issue of a disputed line, the court ultimately upheld the line depicted on the survey based on the principle of estoppel, rather than actually confirming a valid boundary line agreement, stating “...that the agreement of the parties constituted an estoppel and a bar to the maintenance of the proceeding. The landowner did not deny entering into the agreement...”<sup>26</sup>

It is well for the surveyor to remember the difference between the deed and the description when dealing with situations where the courts might rule that actual title transfer had been attempted. While a survey plat or a written land description of the proposed agreement line may be more than adequate as a description, it is not sufficient to be considered a valid deed. Statutes vary from state to state, but most require, at a minimum, (1) sufficiency of description, (2) operative words of conveyance, (3) a competent grantor and grantee, (4) proper execution, (5) delivery, and (6) acceptance. Observe that, in *Smith v. Digh*, the judges apparently doubt that all legal requirements for a valid deed had been met by the notarized plat. As a result, the court was forced to rely on estoppel as the only legitimate means to lend validity to the agreement. In the situation described above, the more prudent course for the surveyor would have been to suggest that the landowners retain an attorney to prepare deeds utilizing the survey just completed. When we compare the probable expense of the litigation leading to this decision with the initial cost of hiring an attorney to properly execute legitimate deeds to the agreed line, the cost of preparing two deeds suddenly seems like a bargain.

### Conclusion

Where two landowners wish to establish a new boundary line between them, the optimum solution is for the clients to employ a surveyor and a real estate attorney working together in order to effect a legal transfer of title in accordance with the intent of the landowners. Unfortunately, problems sometimes arise based on one of two mistaken ideas on the part of the landowners: (a) that the surveyor marking the proposed line on the

ground is better qualified to perpetuate a title transfer than the attorney, or (b) that removing the attorney from the process will save money and time. In the long term, both assumptions often prove incorrect, and may come back to haunt the client – and the surveyor. Remember that when considering boundary line agreements: “...*Land cannot be conveyed by the device of moving fences or changing the marks or monuments which define its limits. If an agreement (having for its real object the transfer of the land, but relating by its terms solely to the boundary line and made with knowledge that the true line is elsewhere than at the place fixed), is oral, it would be void, being an attempt to transfer land without writing. If it is in writing it would be ineffectual to pass title, for it would lack the apt words of conveyance that are necessary to accomplish a transfer of real property.*...”

<sup>1</sup>Clarke on Surveying and Boundaries Lane J. Bouman and Walter Robillard; (7th ed.) 1997 Lexis Law Publishing

<sup>2</sup>The Statute of Frauds in the Light of the Functions and Dysfunctions of Form: Vol. 43, No. 1 Fordham Law Review 1974: Joseph M. Perillo

<sup>3</sup>Haddock v. Leary: 148 N.C. 378; 62 S.E. 426 (1908)

<sup>4</sup>Andrews v. Andrews 252 N.C. 97; 113 S.E.2d 47 (1960)

<sup>5</sup>McDaris v. Breit Bar “T” 265 N.C. 298; 144 S.E.2d 59 (1965)

<sup>6</sup>Smith v. Digh: 9 N.C. App. 678; 177 S.E.2d 321 (1970)

<sup>7</sup>Lewis v. Ogram, L. A. No. 1647 - 149 Cal. 505; 87 P. 60 (1906)



Kris Kline lives in Alexander, NC. Kline's first book "Rooted in Stone: the Development of Adverse Possession in 20 Eastern States and the District of Columbia" includes more information on prescriptive easements and is currently for sale by the author. For more information, go to [www.2Point.net](http://www.2Point.net).

## Congratulations 2014 Institute Graduates!

This year, we were pleased to announce the graduation of three gentlemen from the Otis A. Jones Educational Institute. All have completed 27 classroom hours in Sections A, B, and C of the Institute. Shown below, from left to right, are our 2014 alumni receiving their certificates of graduation: William Larry King (White Lake, NC), Robin Murray (Benson, NC), and current NCSS President Marion L. Sandlin, Jr. (Concord, NC).



## MEMBER PROFILE

# James I. "Jeff" Jeffreys, III



*Assistant Locating Engineer for the  
NCDOT Location & Surveys Unit,  
Matthews, NC*

*Mecklenburg Chapter NCSS  
President 2014-Present*

### **Childhood Ambition**

To be an engineer

### **First Job**

The summer after high school, I worked for Tinga Nursery (a plant nursery) in Castle Hayne, NC as a laborer

### **Favorite Movies**

Most any science fiction movie

### **Favorite Surveying Equipment**

The plumb bob - it comes in handy for a variety of uses in the field

I grew up in the Leland & Wilmington area, attending high school at North Brunswick High School, and then graduating in 1985 from J.T. Hoggard High School in Wilmington. Two of

my biggest interests are science fiction and genealogy. I started studying genealogy as part of a class project in 6th grade, and have continued with it to this day. I went to UNC-Wilmington for two years, preparing to transfer to an engineering school. While I was there, I took a literature class on Science Fiction and met another student with the same last name (spelled the same way also). It was her married name, and she invited me to meet her husband to find out if we were related. His name was G. Douglas Jeffreys, PLS, and he was the Locating Engineer for the North Carolina Department of Transportation (NCDOT) in the Wilmington area. Our families lived in the same part of NC, but we never found a connection.

After finding out that I wanted to be an engineer, he invited me to work over the summer with the Location & Surveys Unit (L&S Unit) in Wilmington. I did, and enjoyed it. While there, I got the opportunity to write several programs for the HP-41 calculators that were used by NCDOT statewide. I transferred to UNC-Charlotte the next semester, and worked the next summer at the Charlotte office of the L&S Unit. The L&S Unit of NCDOT is responsible for the ground surveying aspects of the data collection, analysis, and preparation of mapping for highway and other transportation projects (rail, bike, air, etc.). The L&S Unit prides itself on being the go-to unit when NCDOT or other state agencies need something related to surveying done.

I left school in January 1989 and went to work full time at L&S in Charlotte. I have worked there ever since.

I have written another calculator program, called "CURVE", for the HP-48 that was also widely used. I've worked on a lot of boundary surveys for NCDOT condemnation cases. I've had one of my maps recorded; it was used to clear up the right-of-way for the street next to the courthouse in Monroe, NC where the map is recorded (Union K-192). I was licensed as a PLS in NC in 1996. In 2000, I started taking community college courses, and received an AAS in Surveying Technology from Central Piedmont Community College in 2005. I was licensed as a PLS in SC in 2006, and as a PE in NC in 2008. I occasionally take courses at UNC-C toward a bachelor's degree. I started teaching surveying courses, part time, at Central Piedmont Community College (CPCC) in 2007. My favorite class has been one in Surveying Law.

I met my wife, Idella, at UNC-Charlotte, and we were married in 1990. My hobbies include watching/reading science fiction and history, genealogy, geocaching and searching for geodetic monuments. I've been able to use the skills from my genealogy research to help research at work, and use the work skills to help with my genealogy research. The first geodetic monument I ever found was NCGS TOWN CREEK, EA0883. It was set near the end of our driveway when I was growing up.

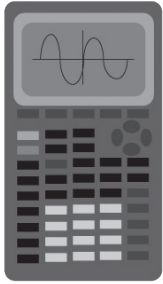
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## PROBLEM CORNER

by John Furmage, PLS

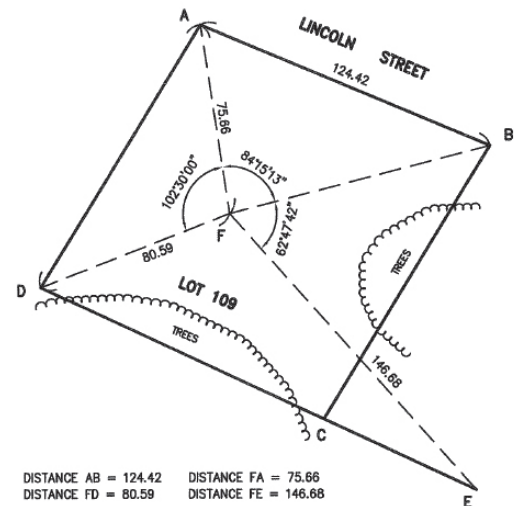
*This problem is the last and most difficult of the four-problem 2013-2014 Trig-Star test. The Trig-Star test is sponsored by the National Society of Professional Surveyors and is given to high school students across the nation. In North Carolina, the students taking the test are predominantly sophomores and juniors. The students are allowed 60 minutes to complete the test. Texas Instruments TI 83+ or TI 84+ calculators are the calculators used in North Carolina schools. Challenge yourself to solve this using the mathematical functions of the calculator, not installed surveying programs. The students are not allowed to use any software.*

The owner of lot 109, shown as figure ABCD, wants to obtain a building permit and hires a land surveyor to complete a Boundary Survey.

The surveyor finds existing monuments at points A, B, and D, and needs to reestablish point C. Trees obstruct the view along lot lines as shown, so the surveyor sets a control point at point F from which all four lot corner locations can be seen. The surveyor also finds a monument at point E, and notes that point C would be on a straight line connecting points D and E. It is also noted that line AD is parallel to line BC.

The surveyor's measured angles and distances are shown below.

Distance DA = \_\_\_\_\_ (6 pts)  
 Distance FC = \_\_\_\_\_ (6 pts)  
 Distance DC = \_\_\_\_\_ (6 pts)  
 Angle BFC = \_\_\_\_\_ (6 pts)  
 Area ABCD = \_\_\_\_\_ (6 pts)



Required Answer Format: Distances to the nearest hundredth. Area to the nearest whole unit.

*Looking for the solution?  
 It's on page 9!*

### Carlson Software Tip of the Day... Wiped Out Property Corner Symbols

#### Problem:

Problem: Lines or polylines of a boundary show up inside your open property corner symbols. See image 1 for an example:

The additional problem is that, if you trim the lines inside the symbols to make it look cleaner, you're actually modifying the length of property lines so the distances from corner-to-corner are no longer accurate.

Here's an alternative: You can download a modified set of Carlson's point symbols that include a "wipeout" entity that hides the lines behind/underneath the open symbols instead of trimming them and changing the length of the lines. Using the new set of symbols, the same property lines and symbols look like those in image 2 (notice that the distances of linework are unchanged):

Want to know how to do this? Visit [www.thatcadgirl.com/news](http://www.thatcadgirl.com/news) to learn more.

### That CAD Girl's

CAD Corner



Image 1



Image 2

That CAD Girl

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Jennifer DiBona is an independent consultant doing business as That CAD Girl. She is a Carlson Software reseller and provides CAD training, technical support, and other CAD-related services.



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# PROCRASTINATOR?

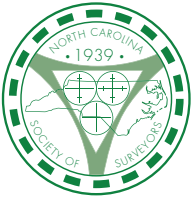
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For more information, see "Schedule at a Glance" (pg. 7)

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