Volume 37: Issue 1
January, 2026

LINES & POINTS

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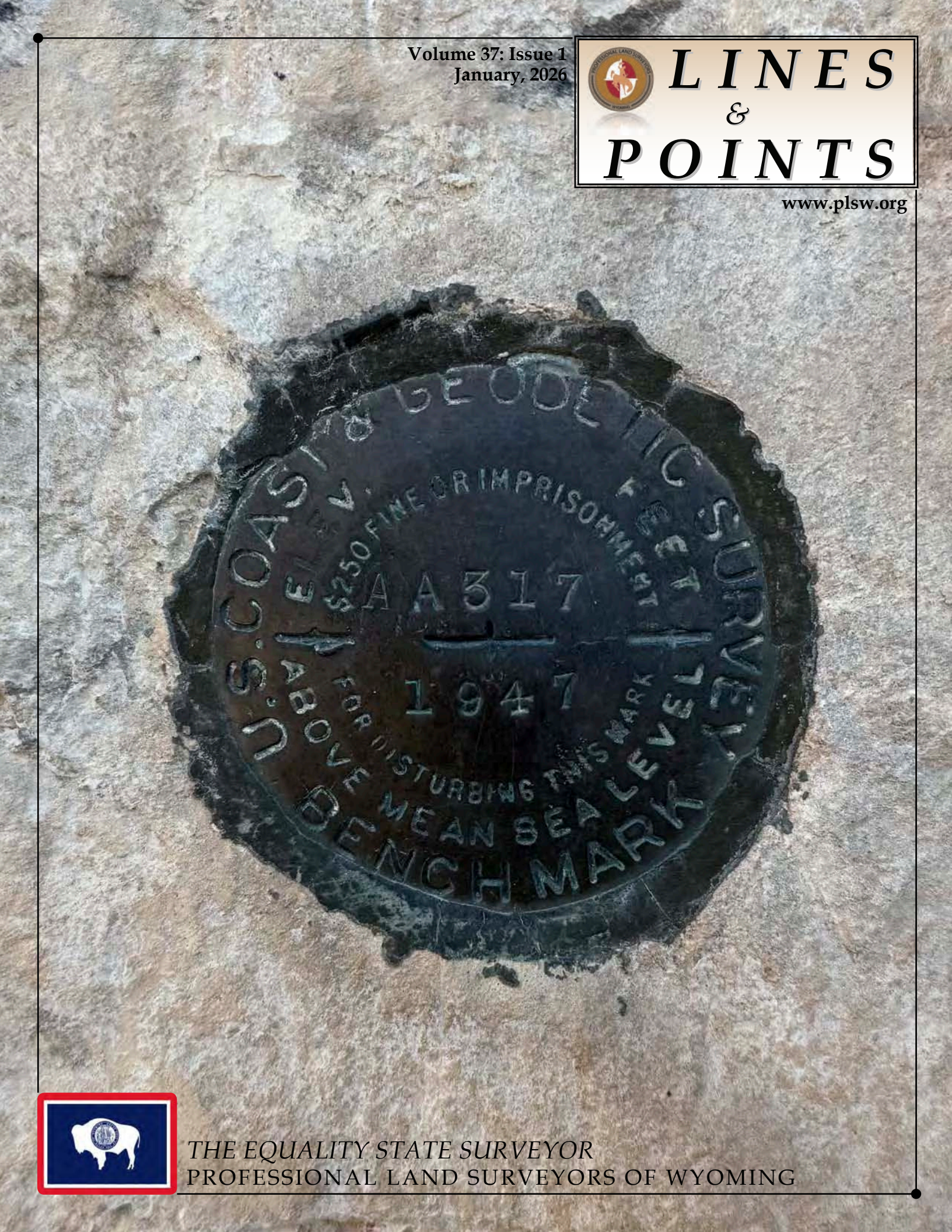

THE EQUALITY STATE SURVEYOR
PROFESSIONAL LAND SURVEYORS OF WYOMING

Publications Committee

On The Cover

USGS Brass Cap
Photo from Cody Schatz, P.L.S.

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2025 PLSW SUSTAINING MEMBERS

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PLSW (Professional Land Surveyors of Wyoming; PO Box 8, Cheyenne, WY 82003) is a statewide organization of Land Surveyors registered to practice in the Equality State of Wyoming. PLSW is dedicated to improving the technical, legal, and business aspects of surveying in the State of Wyoming. PLSW is affiliated with the National Society of Professional Surveyors (NSPS) and the Western Federation of Professional Land Surveyors (WestFed).

Advertising Information

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Quarter Page	$310	$80
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Special Rates apply for PLSW Chapters and cover placements.

For more information please contact Jack Studley.

PRESIDENT'S MESSAGE

Hello all, I hope you all had a good 2025 and now we can have a fresh start in 2026. Thank you again for continuing to have me as the President of the Professional Land Surveyors of Wyoming.

Fall Tech turned out great again this past year. We had over 120 folks in attendance. Kristopher Kline with 2Point, Inc. did a fantastic job of talking about understanding utility easements and talking about boundary disputes that happen when you choose to hold an existing monument, setting a new monument, or choosing between several existing monuments.

Thank you all who donated and bought scholarship items and raffle tickets again. It is amazing to me to see our generosity in our survey community. I want to give a shout out to Chris Hamilton for being our scholarship chairman since 1988 when it was first called the Allen Mace Memorial Scholarship. Thank you Chris for all your hard work. Chris stepped down as the chairman this year, and Doug Boyd will be taking over this role.

I am excited to continue to work with our PLSW group to get our website updated and start streamlining some processes, like yearly dues. Brad Neumiller has been doing a great job getting these items updated. We are also working with our finacial group to partner with NSPS to help move our PLSW group forward to help fund our scholorship and professional development training programs.

Please plan to attend the upcoming 106th Wyoming Engineering and Surveying Society convention in Sheridan on February 4-6. WES has a Land Surveyor on their board of officers, and Lyle has been working hard to compile some good and interesting survey classes.

Like last year, I will try to find a different or fun corner for your reading pleasure. Some of you have seen this corner, but I found this USGS brass cap that was originally set in 1947 on the stairs going into the University of Wyoming Engineering Education and Research Building in Laramie. I know that some of us spent a lot of time there during our college years.

Wishing you a happy New Year. May this year be filled with new adventures and good fortunes. Hope to see you all at WES in February.

Cody A. Schatz, PE&LS

President,
Professional Land Surveyors of Wyoming.

ANNOUNCEMENTS

WESTERN FEDERATION of PROFESSIONAL SURVEYORS
WFPS
526 South E Street - Santa Rosa, CA 95404
Phone:(707) 578-1130 Fax: (707) 578-4406
admin@wfps.org

November 17, 2025

To Whom it May Concern:

On behalf of the Western Federation of Professional Surveyors (WFPS) it is my privilege to announce the WFPS Board of Director's official endorsement of Cotton Jones for NSPS Vice President.

While both candidates demonstrated commendable qualities, Cotton stood out as an exceptional choice for Vice President, which automatically succeeds to the role of President.

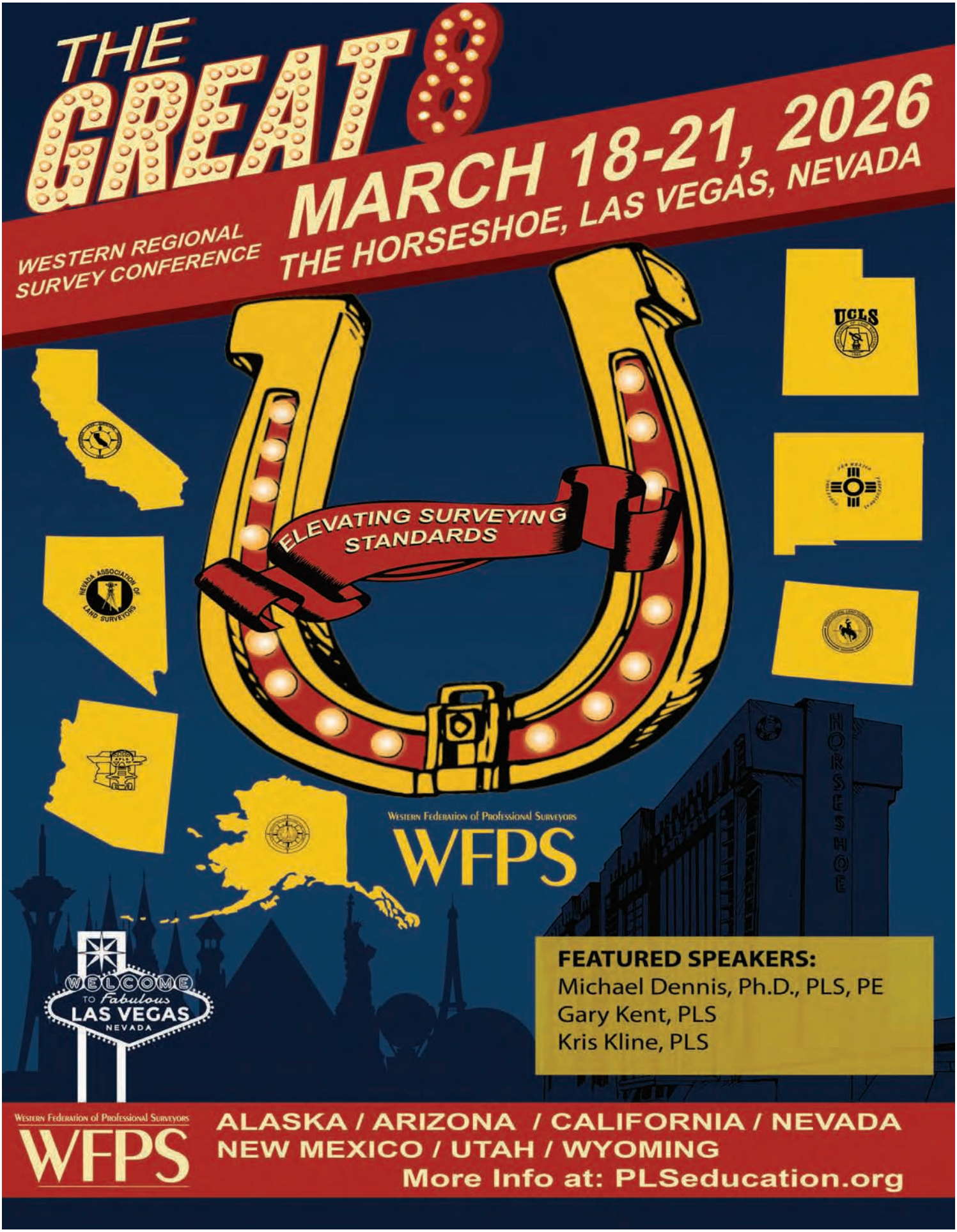
Cotton's broad surveying background reflects hands-on practical knowledge of the profession across multiple sectors which will be valuable experience for a national leader representing a wide range of Land Surveyors. As most of the western states have faced some sort of deregulation, Cotton's ties to the west provide him with particular insight into the importance of monitoring this trend nationally.

After meeting with Cotton, we have no doubt that he will represent land surveyors well in a national role and will work hard to advance the profession while protecting the public.

We urge you to cast your vote for Cotton Jones for NSPS Vice President.

Sincerely,

Carl "Russ" Kluesner, PLS
WFPS Chair


THE GREAT 8
WESTERN REGIONAL SURVEY CONFERENCE
MARCH 18-21, 2026
THE HORSESHOE, LAS VEGAS, NEVADA
ELEVATING SURVEYING STANDARDS
UCLS
Western Federation of Professional Surveyors
WFPS
HORSESHOE
WELCOME TO Fabulous LAS VEGAS NEVADA
FEATURED SPEAKERS:
Michael Dennis, Ph.D., PLS, PE
Gary Kent, PLS
Kris Kline, PLS
Western Federation of Professional Surveyors
WFPS
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More Info at: PLSeducation.org

Are you ready to make a lasting impact on an entire state's infrastructure?

We are seeking a Professional Land Surveyor for a critical leadership position, overseeing all statewide landsurvey operations and driving right-of-way engineering initiatives for Wyoming.

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Why this is your next career move:

- **High-Impact Leadership:** You will be the primary authority, managing all land survey projects,setting standards, and chairing the Survey Oversight committee.
- **Immediate Rewards:** This position offers a **$2,000 Hiring Bonus** and **Moving Expense Reimbursement** to help you get started.
- **Excellent Benefits:** We provide comprehensive health insurance, a state retirement plan, and a culturethat values work/life balance.

If you are a licensed PLS with a passion for leadership and a desire to see your work build a legacy, we wantto talk to you. See the job description and apply at:

https://www.governmentjobs.com/careers/wyoming/jobs/5115976/state-land-surveyor-2025-0258

Working for the State of Wyoming offers more than a paycheck. Our total compensation package includes:

- **Comprehensive health, dental, and vision insurance**
- **Paid vacation, sick leave, FMLA and holidays**
- **Retirement - Pension and 457B plans that help you build a secure future**
- **Flexible schedules and work-life balance options**
- **Meaningful work that makes a difference for Wyoming communities**
- **and MUCH MORE!**

Lines and Points Article Rotation Submission Schedule By Chapter

Responsible Chapter	First Call Date	Last Call Date	Publication Date
Northeast Chapter	THANK YOU! (see "How Survey Monuments Came to Be Considered Holy Relics" AND "From Coordinates to Corners" in this Issue)		
Northwest Chapter	March 1	March 15	April 1, 2026
West Chapter	June 1	June 15	July 1, 2026
Central Chapter	September 1	September 15	October 1, 2026
South Central Chapter	December 1	December 15	January 1, 2027
Southeast Chapter	March 1	March 15	April 1, 2027

Board of Directors discussed, any four page article (with pictures) may be from within the particular chapter membership (survey stories, or technical experiences) or after acquiring permission to use an article from another professional society publication or which provides information of interest to the PLSW members. The Board also approved assigning the responsibility for the article development and submission to each chapter's vice president. If a Chapter does not provide an article that same Chapter shall be obligated to provide an article for the next publish date.

2026 WESS CONVENTION

FEBRUARY 4-6, 2026

RAMADA INN, SHERIDAN WYOMING

DETAILS AND REGISTRATION AT:
www.wyomingengineeringsociety.org/convention/

TENTATIVE SCHEDULE FOR THE SURVEY PROGRAM AND KEYNOTE SPEAKERS:

Wednesday, February 4, 2026
Lunch:
Keynote Speaker Andrew Johnson, Big Horn National Forest; Rehabilitation following the Elk Fire

Session 1 2:40-3:30 pm
Presenter: Paul Thurlow - Geo Instruments
Title: Automated Total Stations and GNSS for Monitoring

Session 2 3:40-4:30 pm
Presenter: Nick McCombie - Frontier Precision
Title: Precision in Practice: An analysis of Modern GNSS Corrective Services

Beer Break with appetizers + Vendor Raffl e

Thursday, February 5, 2026

Session 3 8:20-9:10 am
Presenter: Nate Sharrett - Frontier Precision
Title: Unmanned Aerial Systems

Session 4 9:30-10:20 pm
Presenter: Charles (Mike) Madler, PLS (MT, ND, SD, WY) CFedS No. 1338
Title: Reconstructing Frontier History I

Session 5 10:30-11:20 pm
Presenter: Charles (Mike) Madler, PLS (MT, ND, SD, WY) CFedS No. 1338
Title: Reconstructing Frontier History II

Scholarship and Awards Lunch
Keynote Speaker Jeff rey Kaiser; LaPrele Dam Project

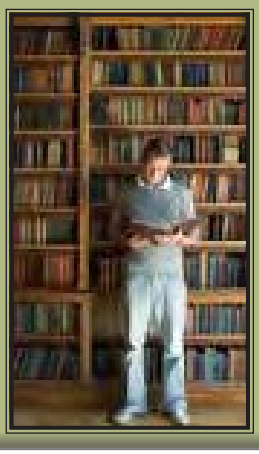
Session 6 1:30-2:20 pm
Presenter: Brian Shaw - NGS
Title: The Modernized National Spatial Reference System is almost here!

Session 7 2:30-3:20 pm
Presenter: PLSW
Title: Business Meeting

APPLY NOW FOR A PLSW SCHOLARSHIP

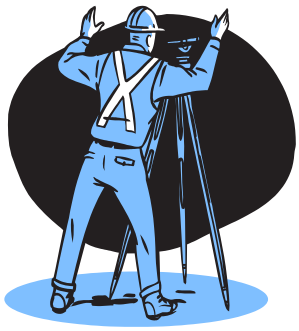
If you are attending college with the intent of pursuing a career in Land Surveying in Wyoming, we want to give you money!

A Scholarship Application is available on our website http://www.plsw.org



ATTENTION!

SAFETY MANUAL FOR SURVEYORS



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THE SURVEYING AND MAPPING PROFESSION

A COLLECTION OF PAPERS ADDRESSING AND RELATED TO THE PROFESSION

Compiled or Authored by
Herbert W. Stoughton, Ph.D., P.E., P.L.S., C.P.
Geodetic Engineer

Letter of Transmittal

23 October 2025

Mr. Michael A Flaim, P.E., P.L.S.

Editor: *PLSW Lines & Points*

Dear Mr. Flaim:

Numerous instances I have been asked how I chose a career in geodetic engineering and surveying. When an undergraduate student at the University ofMichigan, I transferred my elected academic major from architecture to civil engineering. In the civil engineering academic program, the students completed academic studies (and technical academic electives) throughout the civil engineering curriculum [such as: construction management; construction materials; sewerage and waste water treatment; structures; surveying; transportation (railroads, highways, airports; and surface waters); and water supply and treatment]. I selected the academic elective "surveying", also called geodetic engineering. In the process, I met a great group, but few in number, of classmates who became life-long professional and social friends. At that time, the long established surveying and geodesy academic program/department had been assimilated into the Department of Civil Engineering (in 1941). Prior to that date, the Surveying and Geodesy program, though small in size, graduated numerous eminent surveying/civil engineering students [John Butler Johnson, a geodesist who developed precise three-wire leveling, and was an eminent dean of engineering until his death; Robert Simpson Woodward, a geodesist working along side John Fillmore Hayford to develop the acceptability of steel surveying tapes/bands to measure accurately distances and baselines, and geodetic surveying /astronomy with the U.S. Geological Survey; Clarence Thomas Johnston who worked under Elmwood Mead (Reclamation Service), became

(Continued on Page 14)

How Survey Monuments Came to Be Considered Holy Relics

by James Jones, PS, PE (Original Publication: *The American Surveyor*, May 11, 2025)

My survey career began in the metropolitan area of Denver, Co in 1971. The ALTA standards had been promulgated but were not yet in widespread use. At that time, there were two fairly common approaches to producing property surveys. I will describe the approaches using two fictional characters, Windshield Willie, and Fence Line Freddy.

Willie would drive to the property, sit looking through the windshield for a few minutes, then off to the County Clerk and Assessor's office to collect whatever mapping was publicly available. Then Willie would prepare the survey work product based on his windshield observation and whatever public mapping he'd found.

Freddy took a different approach. He didn't require existing mapping. Instead, Willie would set up equipment on the site and dutifully map the fences and any other improvements indicating occupation. Freddy would tie in a survey monument when it presented itself but didn't bother spending much time searching for evidence of any description.

With Willie, record lines were property lines but for Freddy, occupation lines were property lines.

In the 1990's I came to believe that there was an effective end to the Willie/Freddy approaches with the widespread use of ALTA/ACSM Standards. But recently I noticed that the old boys seem to have produced an ideological heir in their amateurish practice. I'll call him Monument Mickey.

I closed my office in 2012 and now keep my hand in the game with odd assignments. I do not engage in much fieldwork currently, but I often work with drawings prepared by surveyor consultants. I have noted Mickey's new approach with alarming frequency. It goes like this:

The title company provides Mickey with a wealth of record evidence which he makes use of to some limited degree. In fact, Mickey seems to have only a passing familiarity with ALTA requirements. Mickey's primary concern is with mapping all the monuments on or near the site. Fences, walls, and other occupation lines get sparse attention. In fact, they may, or may not, be part of the survey. Mickey then draws lines between all the monuments. I mean all the monuments.

I routinely see ALTA surveys with subdivision boundaries platted as straight lines but depicted with angle points. Where are these new angle points? Wherever Mickey finds a monument.

If three pins are found along the rear property line then, lo and behold, there are now three angle points in a line that was platted as straight. A Right-of-way established at 60ft is depicted as varying, say 60.1ft or 59.9ft, based on property pins found along the line.

And the unforgivable example: aliquot lines are depicted with angle points based on property pins found along the line.

Now these are just my personal observations which may not be a fair characterization of the state of the survey profession generally. Malpractice exists in every profession. Surely the modern practitioners know better. But do they?

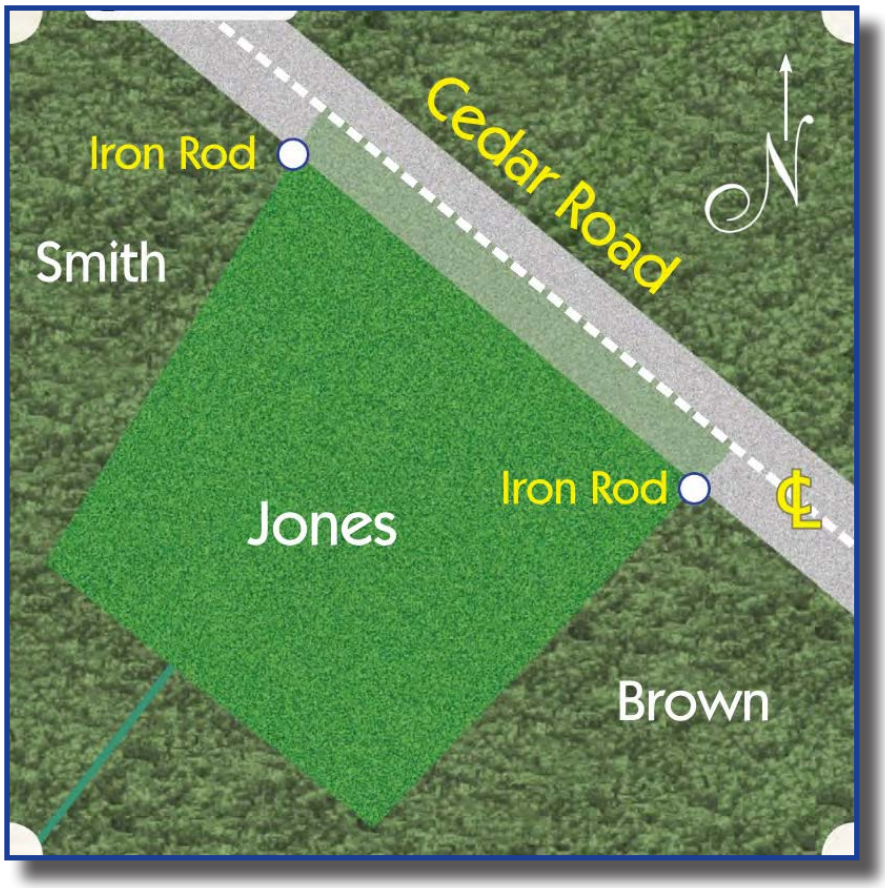
I applied for a license in a new state which required a four-hour exam as part of the reciprocity requirement. The experience was a wake-up call. Here's what happened.

An exam question presented a trapezoidal property and asked for a metes-and-bounds description. All the dimensions were provided. The task was simply to write the legal description based on the information provided.

The property included a road right-of-way which was described, for some unknown reason, as being an easement (i.e., not in fee). The road easement was monumented at the intersection with both the east and west property lines with iron rods. There were no monuments on the road centerline i.e., the NE and NW property corners were unmonumented. (see sketch)

Under these circumstances, good practice would call for monumenting the property corners on the centerline and calling them in the legal description. However, good practice wasn't part of the question. The assigned task was solely to write the legal description. The questions raised by the unusual formulation had to be ignored.

I wrote the legal calling straight lines connecting the four property corners. I called the adjoining properties and the road centerline. I ignored the iron rods set for the easement. The examiner deducted points for not calling the pins. I requested a review of that decision and in an unsigned letter a month later was informed:



"Although the examinee did call the adjoining properties and the centerline of the road … one point was deducted for not calling both of the iron rods on the right-of-way of the road. These monuments are important in controlling the lines … and should have been identified as controlling the location of those lines. *The importance of the survey monument in defining boundaries is discussed in many survey textbooks, legislative statutes and in case law. State* Revised Statute 93.310 'Rules for construing description of real property' highlight the importance of the monuments."*

(My *emphasis*)

*The name of the state is withheld

Anonymous asserts that the location of the monuments set for an easement/property line intersection controls the direction of the east and west lines and the length of the north line. That is ridiculous. In fact, the monument set for the easement/property line intersection doesn't control anything. Not even the easement width.

The iron rods are indeed evidence and they should be evaluated in the full analysis of the survey. The rods may, or may not be, in the correct locations per the deed. That evaluation was not possible within the context of the information given.

Anonymous did not identify the "many survey textbooks … and case law" "defining boundaries" but did identify XRS 93.310 in support of the assertion. Only one of the six XRS 93.310 paragraphs mentions monuments:

(2) When permanent and visible or ascertained boundaries or monuments are inconsistent with the measurement, either of lines, angles or surfaces, the boundaries or monuments *are paramount.* (My *emphasis*)

It is quite true that a called monument is controlling over distance or direction. It's also true that all monumented points are evidence. However, simply marking a location does not make the location authoritative. The statute cited is irrelevant. Anonymous clearly doesn't understand the role of monuments in land surveying practice.

Anonymous references "many survey textbooks" as authority for this reasoning but, didn't cite any examples. One textbook not cited, but should have been, is Brown, Robillard and Wilson, "Evidence and Procedures for Boundary Location," 2nd Ed., John Wiley & Sons which states:

The call for a monument is a call for the spot occupied by the monument… (pg. 41)

Note that XRS 93.319 cites "boundaries or monuments." There are three types of land survey monuments: natural, artificial and record (Brown pg. 11). In the call "along the adjoining properties" to "the centerline of the road," the adjoining property lines and the road centerline are record monuments.

The assertion that artificial monuments set along a line are controlling, in and of themselves, must be a quasi-religious tenet that the surveyor's pin is some sort of holy relic.

When the state board requires basing professional practice on this "holy relic" tenet, it cannot be concluded with any confidence that it is generally understood that irrespective of found monuments; a) subdivision lines platted straight remain straight, b) rights-of-way remain at the width dedicated, and c) lines between aliquot corners are straight.

I was concerned during the exam that the question might be designed to test for the bogus "holy relic" approach. Unfortunately, my concern was justified. There were other, similar examples

of amateurishness throughout the test regarding, for example, basis of bearing and certification which I won't get into here—although they are interesting. However, I did fully address those issues in a seven-page letter sent to the board and individually to every registered land surveyor on the board.

I await their response.

The problem's amateurish premises, the confident assertion of unnamed textbooks and the citation of an irrelevant statute is all evidence of an overwhelmed individual desperately trying to impress. In the bureaucratic age we find ourselves in, the rise of credentialed but uneducated authority has become all too common in all professions. Land surveying is not exempt.

Readers of the "American Surveyor" are aware of the concern for the future of professional land surveying. The average age of practitioners is rising to unsustainable heights as the young show a declining interest in the profession. My experience with the exam shows that the problem runs deeper than the inexpert land surveys crossing my desk.

It may that bright, young people aren't interested in "dumbed down" land surveying because it has no interest—no challenge. If Mickey's is now the standard of care, then the profession may be doomed. And regrettably, but, rightfully, so.

My guess is that Mickey and Anonymous are bright enough individuals possessed with many of the abilities and traits required for expert practice. What they're missing is an awareness of the requirements of legal principles which make the land surveyor a professional and not just another button-pushing technician.

I've had the opportunity to practice this profession over the past five decades largely because of the lessons passed down by older surveyors—we used to call them they greybeards. Now I have the same responsibility. Professional land surveying, properly understood, is honorable, challenging and rewarding work. I owe it a lot. My hope is that raising awareness of basic principles of land survey practice will help revive interest in the profession. The only antidote is education.

It's still up to us greybeards to correct and encourage the young.

James Jones is a licensed surveyor and engineer who lives in Washington. He previously wrote for the magazine here: https://bit.ly/4jn9oK8. He earned his PS in Colorado in 1982, and his PE, also in Colorado, in 1997.

From Coordinates to Corners: Clarifying the Role of PLSS Datasets in Modern Mapping

By Kris Anderson

Introduction

I have been approached numerous times regarding the use and pitfalls of commercially available Public Land Survey System (PLSS) data when used with cell phones and recreational-grade GPS equipment. Following a recent Tenth Circuit Court case involving the Unlawful Inclosures Act of 1885, the use of recreational GPS devices to navigate to PLSS corners and property boundaries has become a major topic of discussion.

In that case, the defendants used widely available PLSS data and recreational-grade GPS to help locate a physical monument at a section corner and crossing from one parcel of Bureau of Land Management (BLM) surface to another without physically touching the private surface between them. The adjacent parcels formed a checkerboard of ownership. Importantly, the defendants knew to cross at the monument—not at a location dictated solely by GPS coordinates.

Broader Impacts of Public PLSS Data

Beyond outdoor recreation, PLSS data consumers use this information for a wide variety of purposes. Issues range from neighbor disputes—when a fence line doesn't match a mobile mapping app's depiction of a property boundary—to technical misuse, where individuals rely on PLSS datasets as the basis for legal boundary descriptions or area calculations.

While the PLSS database is an invaluable tool, it is not a form of boundary evidence. My intent here is to provide background that helps when communicating to the broader public what the data represents, how it is managed, and its proper applications.

What Is the CadNSDI?

The Cadastral National Spatial Data Infrastructure (CadNSDI) is at the heart of what is commercially available to the average consumer through various apps and GIS clearinghouses. CadNSDI is derived from the production dataset maintained by the BLM for daily operations, maintenance, and updates. The dataset is updated as new information becomes available and supersedes the earlier Geographic Coordinate Data Base (GCDB).

The CadNSDI represents a nationwide geographic dataset of the PLSS and related surveys. It aids nearly all levels of local and federal government in planning and maintaining geospatial land records. The database is managed at the state level using ESRI's Parcel Fabric software. In Wyoming, the dataset is further refined using least-squares adjustment tools within that platform. Updated versions of the CadNSDI are published quarterly to the BLM Geospatial Business Platform.

Common public encounters with CadNSDI-derived products include city or county assessor maps and mobile mapping applications paired with recreational GPS devices.

Why Is the CadNSDI Important?

The CadNSDI provides a geographic representation of the most likely arrangement of townships down to the quarter-quarter section, as well as other special federal surveys. At a high level, it supports planning and helps surveyors estimate field conditions more efficiently. When paired with satellite imagery and terrain models, the dataset offers valuable insight into topography, canopy cover, and access.

With local knowledge, a surveyor can evaluate how closely the CadNSDI aligns with physical evidence on the ground—allowing them to generate preliminary search coordinates before ever leaving the office.

Accuracy and Limitations

Most of the CadNSDI is calculated from historical paper records, which may include General Land Office (GLO) and Bureau of Land Management (BLM) township surveys, USGS 7.5-minute quadrangle maps, and in some cases, local records. Corners tied to known geographic control serve as starting points for computing the most likely configuration of the remaining township features. Positions are calculated using a least-squares adjustment based on known positions.

The quality of the source data has a major impact on positional accuracy. Townships that have not been resurveyed tend to exhibit greater positional uncertainty. In some areas, true corner positions may differ from the dataset by several feet—or even hundreds of feet.

It is also important to note that the original GCDB used the NAD27 datum, which further complicates positional precision. The CadNSDI remains a living dataset, continually improved as new information becomes available.

Typical Data Disclaimer

The following statement—or one similar—is typically attached to publicly available PLSS datasets:

"The geographic coordinates and their associated products have NO legal significance. These coordinates cannot be used as a substitute for a legal boundary survey. They may be used for record-keeping, mapping, graphics, and planning purposes only. No warranty is made by the Bureau of Land Management for use of the data for purposes not intended by BLM."

This disclaimer is often overlooked when data are downloaded or incorporated into mobile applications, leading to false assumptions about precision or legal authority.

Historical Context and Legal Framework

It is critical to remember that CadNSDI and GCDB lines were calculated, not surveyed. They represent the most likely position of features based on available information. Actual, legally recognized boundaries remain those physically marked on the ground.

The *Manual of Surveying Instructions* (2009) emphasizes this principle:

"The Act of March 1, 1800 (2 Stat. 14) established the important principle that the lines run and the corners marked on the ground and returned in the field notes and on the plat by the Surveyor General shall be considered to be the lines and corners of the parcels so identified, even though not in conformity with the precise theoretical positions contemplated by the survey laws, or not appearing to correspond with the plat, or found at unequal distances from the respective corners. It thus established a hierarchy of boundary evidence, the foremost and dispositive of which were the actual marks on the ground. This principle was amplified by the Act of February 11, 1805."

Educating the Public

When questions arise, I make a point to explain that PLSS datasets are tools, not evidence. The level of accuracy varies regionally based on the quality and density of source data.

While it may be too late to expect clear disclaimers to appear in every mapping application ("the horse is out of the barn"), personal interactions remain a key opportunity for education. Rather than dismissing the public's inquiries, I strive to help users understand the appropriate role of CadNSDI data—and why it should not be relied upon as a substitute for physical monuments and professional survey work.

The information outlined above has strengthened my confidence in addressing these questions, and I hope it helps others in our field do the same.

Acknowledgments

Special thanks to the Bureau of Land Management and private surveyors contributing corner recovery data to improve the CadNSDI, and to the BLM Buffalo Field Office for providing resources and guidance on this article.

CUMULATIVE INDEX FOR LINES AND POINTS

The Cumulative index has been prepared by Herbert W. Stoughton, PEPLS for Lines and Points and is complete as an index of all the Lines and Points issues. However, the actual assembly of all the available Lines and Points issues is incomplete and is planned to be available on the PLSW Website under the Lines and Points heading.

(Continued from Page 8)

the Wyoming State Engineer after the death of his predecessor (not Mead), and who developed many of the modem water law conventions for the U.S. west of the 100th meridian, and developed the first state registration laws for the professions of engineering and land surveying in the U.S., was appointed chairman of the Department of Surveying and Geodesy until the Department was administratively annexed to the Civil Engineering Department (1941); and Ora Minor Leland (while an undergraduate engineering student) appointed the G.L.O. Chief Office Clerk for Florida during the Spanish-American War, later served as project surveyor on the U.S.-Canada boundary in British Columbia for a decade (the English named a mountain in his honor), served with distinction as a US Army officer during wwr and WwrI, and was a college dean for over four decades. In the 1920's, Clifford B. MacKechnie graduated

(c. 1926-28) and joined the U.S. Lake Survey (U.S.A. Corps of Engineers) supporting geodetic operations for mapping and charting the U.S. waters of the Great Lakes, his technical expertise being triangulation and precise geodetic leveling, and he would execute the design of horizontal surveys and would direct surveys and set the "exact locations for the two towers of the Mackinaw Straits Bridge, which could only be executed in the sub-zero temperatures of winter (remember, electronic geodetic distances did not appear until the late 1950's). Another student of that era (Smith) became an admiral in the National Oceanic and Atmospheric Corps (NOAA Corps).

After the death of Professor Harry Bouchard in 1953, Ralph Moore Berry became Professor of Geodetic Engineering. Berry received a civil engineering degree, attended law school for one year, and worked for the Maryland Parks Commission as a surveyor and civil engineer. Later, joining the U.S. Coast and Geodetic Survey, he executed surveys and maps for the USC&GS air navigation-charting office/branch, and later spent two years as the C&GS representative in the Bureau of the Budget. After completion of that assignment, Berry was invited to join the University of Michigan where he taught until his retirement in 1974. Although his main efforts were teaching the required surveying courses for all undergraduate civil engineering students, he had a number of students electing the surveying academic option and occasional graduate students. His students became an officer in the NOAA corps; several graduates joined the Topographic Division ofthe Geological Survey and filled positions in middle management and senior organization staff. Other graduates went on to professorships, to be geodesists with the Department of Defense; county surveyors; and work in private industry. Professor Berry's legacy was developing new conformal plane coordinates incorporating new technology; stating the underlying philosophies categorizing terrestrial information pertaining to natural and man-made phenomena (GIS); and the ability of students to improve their potential. Also, until his death he had a deep understanding of technical and academic interaction/separation of the professions of civil engineering and surveying & mapping. Through the years his writings would acknowledge developing separate academic programs for surveying and mapping from engineering, but he retained the hope that the two academic disciplines would develop a working relationship in their mutual assignments/ interactions/goals.

There were other proponents beside Bro. Barry and Professor Berry. Although not present at the publication of the ASCE Report, the undersigned personally knew the four members ofthe ASCE Committee. There were many opportunities to discuss that report and the continually expanding academic relationships/differences between the civil engineering and land surveyor practitioners.

This report contains the verbatim transcriptions of the ASCE 1959 Report, several of Professor Berry' contributions, and "staffing documents" the undersigned (authored at the request of individuals and organizations). In the latter group of papers, the undersigned has addressed factors which have become apparent, and were not addressed in and since 1959 and Berry's remarks.

The comments and thoughts stated herein are solely those of the original authors, and do not reflect the policies, doctrines, and/or agendas of any professional organization.

Sincerely,

Herbert W. Stoughton
Geodetic Engineer

"Editor" Mike here: Look for installments of *The Surveying and Mapping Profession* within future issues of Lines and Points.

Thoughts on Professional Practice and Education

Article 12: Life-Time Continuing Education Waiver with Academic Education

by: Knud E. Hermansen, P.L.S., P.E., Ph.D., Esq. †

This is the twelfth article I have prepared in the series offering thoughts on professional practice and education. In this article I am going to reflect on formal education and continuing education requirements.

At the outset, I must point out the elephant in the room. I acknowledge that I hold a Ph.D. and a juris doctorate. I mention this since some will accuse me of self-serving when reading this article. I'm not going to surrender my degrees in order to appear unbiased. I was never known to shy from controversy in living my life or my writing. My contact information is on the web. Feel free to write and chastise me. Don't expect much self-reflection at my age. The sand in my life's hour glass is almost run out. At my age, changing course or my opinion is not likely to happen.

Let me get to the point of this article. Many states have adopted continuing education requirements for re-licensing. This article focuses on the disconnect between state continuing education regulations and academic education achievements.

In this article, I wish to focus on the fact that all states with continuing education requirements have decoupled the requirements for continuing education from academic education other than allow continuing education credit for an academic course taken in a renewal cycle. Specifically, states that require continuing education make no allowances for the achievement of formal academic education. By way of example, a state will require a certain number of professional development hours a year for all licensees regardless whether the licensee has no degree or a doctorate in the profession. This makes no practical sense, at least to me. Let me explain.

As a general rule, a one-credit academic course

is worth fourteen professional development hours. A typical bachelor of science degree in the profession has at least 30 credit hours in focused professional course work. A master's degree in the profession has an additional 30 credit hours focused on professional course topics. Finally, a doctorate has another 60 credit hours above the master's degree focused on professional course topics. Therefore, a licensee with a master's degree has earned the equivalent of 420 professional development hours. A licensee with a master's and doctorate degree has earned the equivalent of 1,260 professional development hours. For a state that requires fifteen professional development hours a year, the licensee with a doctorate has achieved the equivalent of 84 years of continuing education. Unless the licensee stretches their formal academic education coursework over their lifetime, the licensee will only get to claim their formal academic education courses for perhaps two to three license renewals. Perhaps another renewal period can be claimed if the state allows some carryover of continuing education hours.

Unless a licensee with a master's degree or doctorate develops amnesia or dementia, the licensee with formal academic degrees will retain a significant portion of the knowledge from their formal education throughout their professional career. Continuing education regulations should recognize this achievement and give life-time credit for academic education achievements.

I offer four reasons to permit academic education achievements to allow for life-time credit for continuing education.

First, if continuing education is meant to foster professional development, individuals with academic degrees, especially advanced academic degrees, have achieved professional development and knowledge well beyond the typical licensee.

Second, the licensee that has pursued and obtained academic degrees, especially advanced degrees, has shown a commitment for lifelong learning. The licensee will not likely put that commitment aside after completing the degree. The licensee will not need to be coerced to continue life-long learning.

Third, giving life-time credit for degree achievements will encourage licensees to have a focused approach toward meeting continuing

education requirements. Completed academic courses that can be used toward a degree and also substitute for continuing education throughout a licensee's lifetime means that time and money spent on course work will save the licensee time and money later.

Finally, recognition of academic degrees for continuing education will encourage licensees to obtain degrees. States that have no degree requirements for licensure will encourage surveyors to obtain a degree by awarding life-time continuing education credit for a degree. All states can encourage licensees to obtain an advanced degree by permitting life-time credit for advanced academic education culminating in a degree.

I will add that many states already couple academic degrees with experience requirements. Those individuals seeking licensure with formal academic degrees often have to show less experience in order to obtain licensure.

Having given reasons for life-time continuing education credit for academic degrees, I now offer advice by suggesting regulations to be adopted using the same or similar wording as follows:

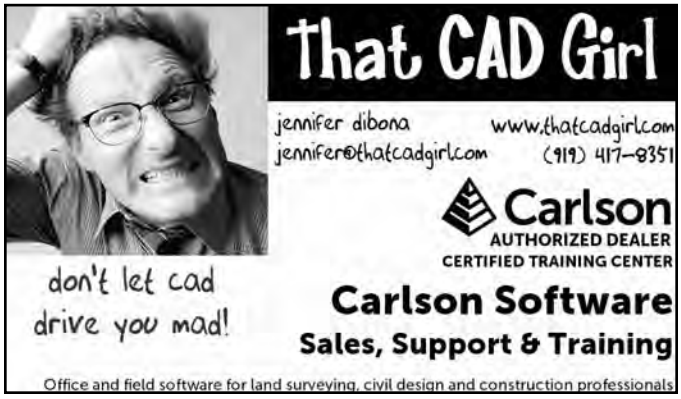
Licensees with at least thirty credit hours of surveying or related course work and a bachelor of science degree may waive half the continuing education requirements for renewal of licensure for every renewal period. (Note any bachelor of science degree with ABET accreditation in surveying, geomatics, or similar title will be presumed to meet the requirement of thirty credit hours.)

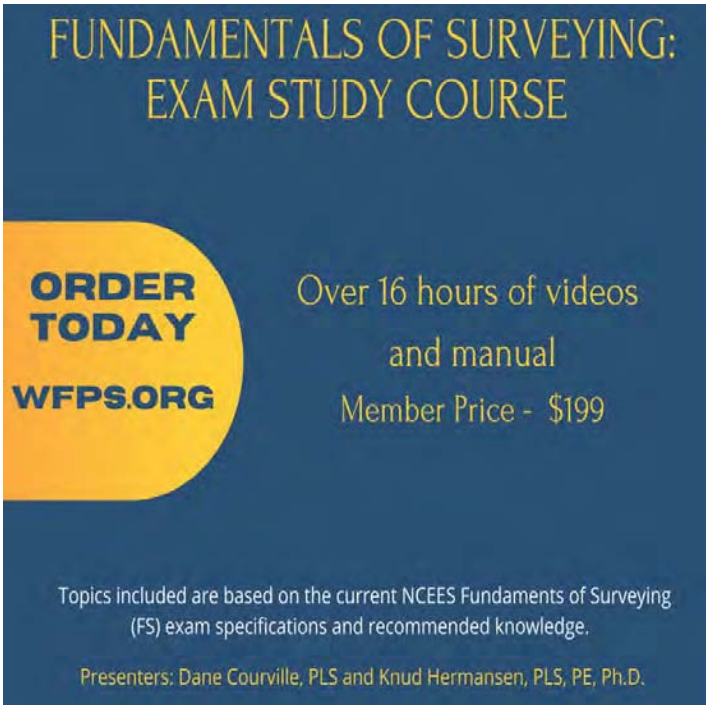
Licensees with a master of science degree along with forty-five credit hours in surveying or related course work may waive three-fourth of the continuing education requirements for renewal of licensure for each renewal period. (Undergraduate and graduate surveying or related course work is counted toward the forty-five credits.)

Licensees with a doctorate degree along with sixty credit hours in surveying or related course work may waive all continuing education requirements for renewal of licensure for each renewal period. (All undergraduate and graduate surveying or related course work is counted toward the sixty credits.)

I will close by suggesting that the appearance of a conflict of interest in advocating this recognition, is really not a conflict of interest if the reader delves into my life. Having lived to the age I find myself at, I recognize that I will be long dead before regulations are changed and there would be an easing in continuing education requirements that could affect me because of the degrees I have.

† Other books and articles by Knud can be found at https://umaine.edu/svt/faculty/hermansen-articles/





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