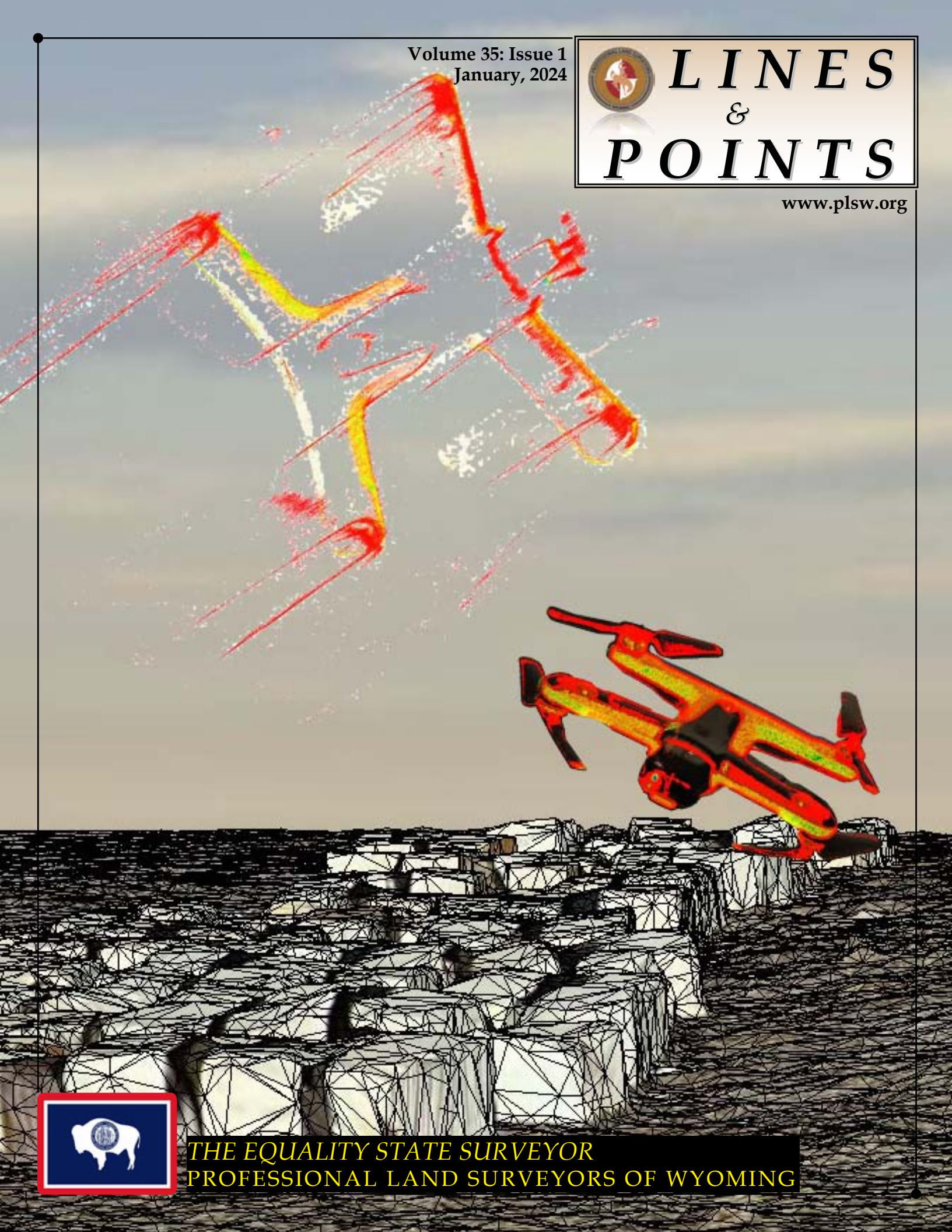


Volume 35: Issue 1
January, 2024



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On The Cover

TERRESTRIAL SCANS OF A WYDOT DRONE.

COMPOSITE PHOTO BY MIKE FLAIM, PELS

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For more information please contact Jack Studley.

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).

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PRESIDENT’S MESSAGE



2023 has wound down and I hope this finds you all wrapped up from last year’s endeavors and looking forward to new projects in 2024.

This year’s fall tech was once again a success. This is in no small part due to Bill Fehringer and his crew’s continued efforts. Thank you, Bill, for making these Technical Sessions consistently some of the best organized and productive gatherings available to Wyoming Surveyors.

As a part of the Fall Tech session, PLSW always sponsors a silent auction and raffle. The funds generated by these endeavors are utilized to support the scholarship fund. The silent auction and raffle were some of the most successful in recent history. I would like to give Chris Hamilton a big shout out for once again organizing that fund raiser and to all the contributors and members who bought items and tickets. You generated over \$3000 that can be utilized to support the next generation of Land Surveyors!

As we move into 2024 surveyors in Wyoming are lucky to have multiple opportunities for continuing education and professional development. WES will once again be taking place in February. Jack

Studley is heading up the Surveying Program. If you would like to make a presentation please contact him, I am certain he is looking for good presentations to fill time slots.

The Western Regional Survey Conference is scheduled for March 23 - 26 for those interested. It will be taking place at the Horseshoe Hotel and Casino, Las Vegas, NV. This is an excellent opportunity to network with other professionals and pick up a few credits at the same time.

PLSW will be supporting the 2024 Western Planner Conference which will be taking place on August 7th - 10th in Cheyenne. This is an opportunity for surveyors in Wyoming to work with the planners. Surveyors are a link for Planners to learn what has happened in the past and how it might influence an area in the future. We are a resource that often is forgotten during the planning process. My hope that this type of participation and support can foster better relations between our disciplines. If you would like to make a presentation, please feel free to reach out to me.

My goal and challenge to all of the membership is to find or recruit young people into our profession. If you have a chance to impact a young person either through a summer job, a high school job shadowing program or youth program then please do.

Best Wishes to all,
 Doug Boyd, PLS
 President,
 Professional Land Surveyors of Wyoming.

LINES AND POINTS ARTICLE ROTATION SUBMISSION SCHEDULE BY CHAPTER

Responsible Chapter	First Call Date	Last Call Date	Publication Date
Southwest Chapter	THANK YOU! (SEE “AFFIDAVITS OF CORRECTION” IN THIS ISSUE)		
Northeast Chapter	March 1	March 15	April 1, 2024
Northwest Chapter	June 1	June 15	July 1, 2024
West Chapter	September 1	September 15	October 1, 2024
Central Chapter	December 1	December 15, 2024	January 1, 2025
South Central Chapter	March 1	March 15	April 1, 2025
Southeast Chapter	June 1	June 15	July 1, 2025

As the 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.

The Bureau of Land Management -Land Survey Job Announcement

The following announcement: Land Surveyor, GS-1373-7/9/11 FPL: 11, located in Rawlins and/or Worland, Wyoming has been set to open on Thursday, January 4, 2024 The announcement number is WYDE-24-12261169-ERW, or you may access the job announcement through the following link: <https://www.usajobs.gov/GetJob/ViewDetails/768764500> This position is open to: Career transition (CTAP, ICTAP, RPL), The public, Veterans NOTE - This announcement will be open from: Thursday, January 4, 2024 to Thursday, January 18, 2024*** Incentives: The BLM may use certain incentives currently offered by the Federal Government to attract high quality applicants Relocation expenses: Are not authorized Here are a few reminders to pass along to any interested applicants so they don't inadvertently disqualify themselves from further consideration:

• Resumes should also include a month/year and hours per week worked, along with their relevant work experience underneath each period of employment. Their resume should contain enough details regarding their work experience for us to determine whether they have the specialized experience or not.

• If they have current or prior federal service, they should list the grade levels. If this is left out, it won't necessarily get them rated out, but it may help them get rated in easier. Submitting copies of their SF-50's showing their current grade and series is also helpful OR if they were previously in the series, they should submit those SF-50's too.

• They MUST submit ALL required documentation prior to the announcement closing. All documents must be legible. Sometimes the documents submitted are blurry and really hard to read, or the file is corrupt, and we can't access their documents. We do NOT accept late documents. Please Note: The ABOVE information and much more can be found on the HELP section of the USAjobs site. It goes more into detail regarding the federal hiring process, proper resume format and covers some of what I've listed above in more detail. <https://www.usajobs.gov/Help/> Please let me know if you have additional questions or concerns.

Thank you,
Emanuel Williams
Human Resources Specialist
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*The following reflects the version of the bill text at the time of publication. For current edits please see-
<https://wyoleg.gov/Legislation/2024/SF0017>*

2024

STATE OF WYOMING
SENATE FILE NO. SF0017

24LSO-0247

Plane coordinates system-amendments.

Sponsored by: Joint Transportation, Highways & Military Affairs Interim Committee

A BILL for

AN ACT relating to the plane coordinates system; updating the plane coordinates system for Wyoming; providing for the use of other datums, systems and networks for the system; providing definitions; making conforming amendments; repealing provisions related to obsolete coordinate standards; and providing for an effective date.

Be It Enacted by the Legislature of the State of Wyoming:

Section 1. W.S. 34-25-109 is created to read:

34-25-109. Definitions.

(a) As used in this chapter:

(i) "Metadata" means data that describes other data including utilized geodetic reference system data, applicable epoch, statement or relative accuracy data and date of observation data;

(ii) "NGS" means the national ocean service's national geodetic survey of the national oceanic and atmospheric administration, United States department of commerce or its successor;

(iii) "NSRS" means the national spatial reference system or its successor;

(iv) "Wyoming Plane Coordinate System" means the system of plane coordinates under this chapter that is identical to the state plane coordinate system as defined for the state of Wyoming by NGS.

Section 2. W.S. 34-25-101(a), 34-25-102, 34-25-103 and 34-25-105 through 34-25-108 are amended to read:

34-25-101. System of plane coordinates adopted.

(a) The ~~system~~ most recent version of the state plane coordinates which coordinate system for the state of Wyoming that has been established by ~~the office of National Geodetic Survey, or its successors-NGS,~~ based on the NSRS for defining and stating the positions or locations of points on the surface of the earth within the state of Wyoming ~~is adopted and hereafter~~ shall be

known ~~and designated~~ as the "Wyoming Plane Coordinate System." ~~NAD-1983.~~ The Wyoming Plane Coordinate System shall be named, and in any land description in which it is used it shall be designated, the "Wyoming Plane Coordinate System" and the zone used shall be specified.

34-25-102. Designation of coordinates.

The plane coordinates of a point on the earth's surface, to be used in expressing the position or location of such point in the appropriate zone of this system, shall consist of two (2) ~~linear~~ distances, expressed in feet and decimals of a foot, or meters to the nearest millimeter and decimals of a meter. One (1) of these distances, to be known as the "~~east x-coordinate~~" ~~or "east-coordinate,"~~ shall give the position in an distance east and-west direction of the Y axis; the other, to be known as the "~~north y-coordinate~~" ~~or "north-coordinate,"~~ shall give the position in a north-and-south direction. These coordinates shall depend upon and conform to the coordinates, on the Wyoming Coordinate System NAD-1983 of the National Geodetic Survey, or its successors, within the state of Wyoming, as those coordinates have been determined by the survey. distance north of the X axis. The Y axis of any zone shall be parallel with the central meridian of that zone. The X axis of any zone shall be at right angles to the central meridian of that zone. One (1) foot shall equal three thousand forty-eight ten-thousandths (0.3048) of one (1) meter and shall be used as the standard unit of measurement for the Wyoming Plane Coordinate System. The official geodetic datums to which geodetic coordinates are referenced within the state of Wyoming including latitude, longitude,

ellipsoid height, orthometric height or dynamic height shall be defined by the NSRS. Height is the coordinate value of the vertical elements of the NSRS expressed in feet and identified as ellipsoid height or orthometric height.

34-25-103. Land extending into other zones.

When any tract of land to be defined by a single description extends from one (1) zone into a ~~second of the coordinate~~ other zones, ~~specified in W.S. 34-25-101,~~ the positions of all the points on its boundaries ~~may~~ shall be referred to ~~either of the two (2) as only one (1) of the~~ zones, ~~and~~ the zone which is used shall be specifically named in the description and the metadata of the observations shall be included in the description.

34-25-105. Recording coordinates.

~~No~~ Coordinates based on the Wyoming Plane Coordinate System, ~~NAD 1983,~~ purporting to define the position of a point on a land boundary, ~~shall~~ may be presented to be recorded in any public land records or deed records in the office of a county clerk. ~~unless a record and report of survey of the actual survey to establish the plane coordinates of the point has been filed with the county surveyor, the county engineer or the county clerk and in conformity with the standards prescribed in W.S. 34-25-104. When acceptable satellite survey techniques are employed, a minimum of two (2) independent observing sessions shall be executed and shall agree to not less than one (1) part in one hundred thousand (100,000) of the distance between the points. The procedures and results shall conform with the standards in W.S. 34-25-104. The method and source for establishing coordinates shall be described in the land or deed record. In all instances where reference has been made to coordinates in land surveys or deeds, the combined factors shall be stated for the survey lines used in computing ground distances and areas and the metadata of observations shall be included in the record.~~

34-25-106. Reference to system on maps.

The use of the term "Wyoming Plane Coordinate System" ~~NAD 1983~~ on any map, report of survey or other document, shall be limited to plane coordinates based on the Wyoming Plane Coordinate System ~~NAD 1983~~ as defined in this chapter.

34-25-107. Description in other surveys; conflicts.

Wherever coordinates based on the Wyoming Plane Coordinate System ~~NAD 1983~~ are used to describe any tract of land which in the same document is also described by reference to any subdivision, line or corner of the United States public land surveys, the description by plane coordinates shall be construed as supplemental to the basic description of ~~such~~ the subdivision, line or corner contained in the official plats and field notes filed of record, and in the event of any conflict, the description by reference to the subdivision, line or corner of the United States public land surveys shall prevail over the description by plane coordinates. Every recorded map, survey or conveyance, or other instrument affecting title to real property which delineates, describes or refers to such property or any part thereof by reference to coordinates based upon the Wyoming Plane Coordinate System ~~NAD 1983~~ shall also describe the property by reference and tie to a controlling corner monument of the United States public land surveys, if applicable.

34-25-108. Application.

(a) Nothing contained in this chapter shall require any purchaser or mortgagee to rely on a description, any part of which depends exclusively upon the Wyoming Plane Coordinate System, ~~NAD 1983.~~

(b) The provisions of this chapter shall not be construed to:

(i) Prohibit the appropriate use of other datums, other geodetic reference networks or systems or other plane coordinate systems;

(ii) Require the revision of any survey, deed, record or other document prepared or recorded before July 1, 2024 that uses the Wyoming Coordinate System NAD 1983 or any other coordinate system previously authorized under this chapter.

Section 3. W.S. 34-25-101(b) and 34-25-104 are repealed.

Section 4. This act is effective July 1, 2024.

(END)

Chasing Railroad Spirals: 18?? - 1930's

Herbert W. Stoughton Ph.D., P.E., P.L.S., C.P.

Early in my education career I was introduced to railroad surveying, particularly, alignments, circular curves, superelevation, and transition spirals. Unfortunately, by the 1960's there was very little new railroad construction, and minor projects in realignments and maintenance. Therefore, the emphasis in transportation courses to address surveying was nearly eliminated. It was the era of design and construction of President Dwight David Eisenhower's Inter-State Highway System, where the emphasis migrated toward highway transition spirals. In some cases the highway spirals were a "spin-off" of the railroad spiral, but a significant portion of the highway spiral geometry was developed based upon the unique characteristics of the alignments and automobile and freight vehicles. In the last three decades, there has been a new interest in railroad spirals abroad, as old railroads were being upgraded and realigned. In the United States, there has been a small contingent of surveyors and railroad surveyors having a deep technical interest in track alignment retracements. This initiated in me a new interest for the elusive railroad transition spiral.

The Englishman William Gravatt (inventor of the Dumpy Level) coined the first English language technical name of a transition curve/spiral as "curve of sines" (c. 1830). Around the mid-nineteenth century William John Macquorn Rankine authored a major engineering handbook which was a standard civil engineering reference on both sides of the Atlantic Ocean. In 1861, the only public explanation of the curve was written by Gravatt, but the mathematics (contained therein) was nearly nonexistent. From what I can discover, it was used on only one or two railroads, and probably the only actual "mathematics of layout" would be discovered in the original engineering drawings and field notes! A decade after Gravatt's efforts, another Englishman, William Froude, introduced another transition curve which seemed to work for the slow speed (velocity) trains traveling during that era, but no publication of his mathematical presentation was found before 1861. I gather it was an acceptable geometry, and may have been used on several railroads in the

British Isles. Although the American and British railroad engineering communities exchanged technical, design, and construction information, there is little in the American literature indicating that Gravatt's and Froude's curves were known or used until identified in the engineering handbook authored by William John Macquorn Rankine (mentioned above), and then did not gain wide acceptance. Another nineteenth century English transition curve was developed by the eminent English engineer Wilfrid Airy (son of George Biddell Airy, Astronomer Royal).

The American engineering community had a parallel effort. One of the initial approaches was authored by Stephen Harriman Long (U.S. Topographic Engineer). Besides being a well know mapping explorer (Long's Peak, Colorado), he spent a considerable portion of his professional career designing and building engineering works and railroads, and wrote about railroad surveying and location. I have not been able to locate a copy (even a photo reproduction is satisfactory) of his writings. In 1837, Samuel W. Mifflin and James C. Nagle published works and are frequently referenced in later railroad engineering works. The next major U.S. contribution was written by C.S. Cross (1855), followed by a major work written by John Benjamin Henck and a lesser known work by William Findlay Shunk, both in 1866. Henck was a prominent railroad engineer designing and building railroads and his book was a standard reference for over three decades. While Rankine's work was a standard reference in the U.S., John Cresson Trautwine wrote a parallel tome addressing American engineering railroad practice. It would eventually replace Rankine in the U.S., partially because of the type and magnitude of some of the engineering projects being designed and constructed in the U.S. after the American Civil War. Revised/updated editions of Trautwine's handbook would be authored by his son - John, Jr.; and his grandson John, 3d. (the last being 1937). In the early 1890's, Charles Lee Crandall, Walter Gordon Fox, Calvin Frank Allen, and Edwin E. Woodman authored major works addressing transition curves. In the same decade, civil engineering works by James C.

Nagle, Daniel Carhart, and Conway R. Howard provided significant information concerning railroad engineering. A book published in the 1880's on railroad location and economics, would be reprinted for decades. Then, in the 1920's, Professor Grant was commissioned by the publisher to revise the work to address the general subject of engineering economics. The engineering economics treatise today known as 'Grant and Iverson', was direct successor to a book addressing railroad engineering and economics.

The first three decades of the twentieth century witnessed a deluge of works: Philetus Harvey Philbrick (1901); Arthur Newell Talbot (1901); Reuben Stewart Henderson (1906); Frederick Augustus Smith (1906); John R. Stephens (1906); Norman Benjamin Kellogg (1907); Charles Lee Crandall and Fred Asa Barnes (1913); Walter Loring Webb (1914 and earlier); Lee Perkins (1915); and Thomas Felix Hickerson (1926) authored significant works. Also, a number of the late nineteenth century writers continued to update and published their earlier works and produce new contributions.

Besides the works published in book form, the number of technical papers appearing in a wide range of engineering publications number over one hundred. The list of authors included many of the major practitioners of railroad engineering of the last four decades of the nineteenth century.

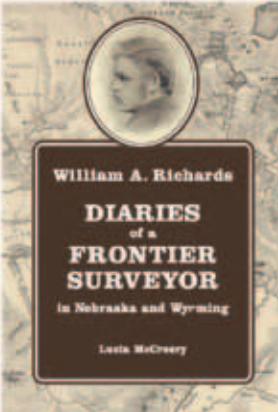
Since the beginning of the twentieth century there has been an effort to have a "standardized" transition curve. The result has been the AREMA spiral. Some railroads have adopted this configuration, but because many of the existing railroad alignments have a "pre-transition curve" history, which seemed to work successfully, there has been some reluctance to convert to the new system. Also, the modern railroad systems (corporate assemblages) of smaller nineteenth century railroad systems, etc., have embedded within each local railroad system a set of geometrical technology (alignments, circular curves, transition spirals and associated track configurations). My research, although informal and probably considered unscientific, indicates that it is extremely difficult to locate the historical information required to recreate the fundamental mathematics of the geometry they employed.

Although I do not personally know the number of railroads designed, constructed, and operated in the U.S., it probably numbers between fifty and one hundred fifty. This problem affects a 'serious historical researcher' attempting to find "abstract geometrical information" archives. I have found in recent decades (about four!) that the historical monitoring staffers have been low-paid (with no professional/technical education) individuals, being the custodians of the records/files, and having no intellectual clue as to the merits of the information. I found this characteristic in the director of at least one major regional museum (employing a professional museum staff) related to historical American engineering, and in the staffs of the offices/divisions of historical records of major corporations. Although the pertinent historical information/data are available, we lack those individuals who understand and appreciate our objectives and goals. It is particularly frustrating when the researcher resides afar from the source of the potential information, and the supporting travel/research expenses are unavailable to minimally support valid investigations.

From Wyoming's own W. A. Richards

Join our future governor as he surveys for settlement of the West. Writing in camp, he vividly and often humorously records his hardships and challenges—

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Reviewed in the October 2023 issue of *Lines & Points*

**For more about the book and Richards's life and legacy
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Affidavits of Correction

By: Geno Ferrero, PLS

An affidavit of correction is a legal document used to rectify errors or inaccuracies in previously filed documents, typically related to important records like deeds, titles, or official certificates. It is a sworn statement made by the person who originally filed the incorrect document, or sometimes by a notary or other authorized individual, confirming the error and providing the corrected information.

They can apply to boundary descriptions in real estate documents. If there is an error in a boundary description on a property deed, for example, the original author of the legal description an authorized individual can use an affidavit of correction to rectify the mistake.

Here's how it typically works:

1. Identify the Error: First, the party seeking correction must identify the specific error in the boundary description. This could be a mistake in measurements, boundary markers, or other details related to the property boundaries.

2. Prepare the Affidavit: An affidavit of correction is drafted, which includes a sworn statement that acknowledges the error and provides the corrected boundary description. It should be signed by the person who made the error or, if applicable, a notary public.

3. Record the Affidavit: The corrected affidavit is typically attached to the original deed or filed with the appropriate land records office, depending on local regulations. This recording makes the correction part of the official property records.

By using an affidavit of correction for boundary descriptions, property owners can maintain the accuracy of their property records and avoid potential disputes or confusion over property boundaries. Keep in mind that the specific procedures and requirements for correcting boundary descriptions can vary by jurisdiction, so it's essential to consult with legal professionals or local authorities for guidance.

Errors in a land description can potentially prevent title insurance companies from insuring a

property. Title insurance is designed to protect the property owner and the lender against losses that may arise from issues with the property's title. If there are significant errors or discrepancies in the land description, it can create uncertainty or disputes about the property's boundaries, which may result in a title insurance company being unwilling to provide coverage.

Title insurance companies conduct thorough title searches to identify any potential issues with the property's title, including errors in legal descriptions, boundary disputes, or unresolved claims. If they discover a substantial error or discrepancy that poses a significant risk to the property's ownership, they may either refuse to issue a policy or require that the error is corrected before providing coverage.

To address such issues, property owners often need to correct the errors in the land description through legal means, such as filing an affidavit of correction or a corrective deed, to provide a clear and accurate legal description of the property. Once the correction is made, the title insurance company may then be willing to issue a policy, assuming all other title-related issues are resolved as well.

Land surveyors assist in the title insurance process by providing accurate boundary information, identifying potential encumbrances, and helping to resolve boundary disputes. Title insurance companies will request the surveyor or company that prepared the erroneous legal description and request an affidavit of correction to address the patent or latent ambiguities found within the legal description or plat.

Filing an affidavit of correction typically involves the following steps:

1. Prepare the Affidavit: Draft an affidavit of correction that clearly identifies the document needing correction, describes the error, and provides the corrected information. Include a sworn statement that attests to the accuracy of the correction.

2. Notarize the Affidavit: The affidavit often needs to be notarized. This involves taking the document to a notary public, who will witness the signing and affix their official seal.

3. **Check Local Requirements:** Be aware of your jurisdiction's specific rules and requirements for filing affidavits of correction. Local rules can vary, so consult with a legal professional or the relevant government agency to ensure you follow the correct procedure.

4. **Submit the Affidavit:** File the affidavit of correction with the appropriate government office or agency responsible for maintaining the records related to the document in question. This might be a county clerk's office, a land records office, or another relevant authority, depending on the nature of the document.

5. **Pay Fees:** Some jurisdictions require the payment of a filing fee when submitting an affidavit of correction. Be prepared to cover any applicable fees.

6. **Attach to Original Document:** The corrected affidavit is often attached to the original document that contains the error. It becomes part of the official record associated with that document.

7. **Notify Interested Parties:** It's a good practice to inform any interested parties, such as other parties named in the document or affected by the correction, of the filing. This helps ensure that everyone involved is aware of the correction.

8. **Keep Copies:** Always retain a copy of the affidavit for your records, and if necessary, provide copies to any relevant parties or entities.

Preparing an affidavit of correction involves certain risks, and it's essential to be aware of potential issues:

1. **Legal Requirements:** If the affidavit is not prepared correctly or does not meet the legal requirements of your jurisdiction, it may be invalid, and the correction may not be legally recognized.

2. **Recording Delays:** The process of preparing and filing an affidavit of correction can be time-consuming, leading to delays in resolving the error or in subsequent property transactions.

3. **Property Disputes:** The correction may affect neighboring property owners or other interested parties who could dispute the changes, potentially leading to legal conflicts.

4. **Costs:** There can be costs associated with notarization, filing fees, and legal assistance, especially if disputes arise.

5. **Inaccurate Corrections:** Making incorrect corrections in the affidavit may compound the problem, leading to further errors in property records.

6. **Inadequate Title Insurance:** If there are unresolved issues, title insurance companies may be hesitant to provide coverage, which can be a risk when buying or selling the property.

7. **Public Record:** Once filed, the affidavit of correction becomes a public record, making the correction and associated details accessible to anyone. This can affect your property's privacy.

To mitigate these risks, it's essential to work with legal professionals, such as attorneys or title companies, who are experienced in real estate matters. They can ensure that the affidavit is prepared correctly, meets legal requirements, and helps resolve any errors without introducing new issues. Additionally, communicating with all relevant parties and interested parties can help prevent disputes and misunderstandings related to the correction.

An affidavit of correction should contain specific elements to make it a legally valid and effective document. While the exact requirements can vary by jurisdiction, here are the typical elements that should be included:

1. **Title:** Begin the affidavit with a clear and descriptive title, such as "Affidavit of Correction."

2. **Affiant's Statement:** Include a sworn statement, often beginning with language like "I, [Name of Affiant], do solemnly affirm under penalty of perjury..." The affiant is the person making the correction, and they should confirm the accuracy of the correction.

3. **Affiant's Credentials:** Include credentials that show the subsequent statements are credible. Additional information such as reasons for familiarity with property may be included. If correcting errors of retired or deceased individuals, such statement may be made.

4. **Introduction:** Include introductory language that identifies the document you are correcting, such as the document's title, recording date, and any relevant details.

5. **Reference to Original Document:** Provide clear references to the original document, including its type, date, and any identifying information that helps link the correction to the original.

6. **Statement of Error:** Clearly state the error or inaccuracy in the original document, providing a detailed description of what needs correction.

7. **Corrected Information:** Present the accurate and corrected information. Ensure that the new information is clear and unambiguous.

8. **Recording Information:** Include details about where and when the affidavit will be filed or recorded, such as the county and state where it will be submitted.

9. **Ending Statement:** Statement of “Further, Affiant saith not.”, or similar statements, notify the reader that not further statements are forthcoming.

10. **Signature:** The affiant must sign and date the affidavit, typically in the presence of a notary public if notarization is required.

11. **Notary Acknowledgment:** If required by law, the affidavit should be notarized. This means it should include a notary acknowledgment section

where the notary public certifies the affiant’s identity and the authenticity of their signature.

Please note that the specific requirements for an affidavit of correction can vary by jurisdiction and the type of document being corrected. It’s advisable to consult with legal professionals or the appropriate government office to ensure that your affidavit of correction complies with local regulations and serves its intended purpose.

In conclusion, affidavits of correction serve as vital instruments in rectifying errors within legal documents, particularly those concerning property titles, deeds, and certificates. These sworn statements play a crucial role in ensuring the accuracy of official records. By acknowledging and correcting errors, these affidavits contribute to the integrity of property records. However, it is imperative to navigate the process carefully, adhering to jurisdiction-specific regulations and seeking legal guidance when necessary. Ultimately, affidavits of correction play a pivotal role in maintaining the precision and reliability of documents prepared or corrected by professional land surveyors.



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Attached is the latest version of the language for your review and consideration. Please send comments/questions/suggestions to me and/or info@nspss.us.com by Wednesday, January 31st and I will forward them to the review committee.

*Thanks,
Timothy W. Burch, PLS
Executive Director, NSPS
tim.burch@nspss.us.com*

Model Law Section 110.20 - Showing current with proposed changes

B. Professional Surveyor (Professional Land Surveyor, Professional Surveyor and Mapper, Geomatics Professional, or equivalent term)

1. Professional Surveyor – The term “Professional Surveyor,” as used in this Act, shall mean an individual who has been duly licensed as a professional surveyor by the board established under this Act and who is a professional specialist in the technique of measuring land, educated in the basic principles of mathematics, the related physical and applied sciences, and the relevant requirements of law for adequate evidence and all requisite to surveying of real property, and engaged in the practice of surveying as herein defined.

2. Professional Surveyor, Retired – The term “Professional Surveyor, Retired,” as used in this Act, shall mean an individual who has been duly licensed as a professional surveyor by the board and who chooses to relinquish or not to renew a license and who applies to and is approved by the board to be granted the use of the title “Professional Surveyor, Retired.”

3. Surveyor Intern – The term “Surveyor Intern,” as used in this Act, shall mean an individual who has been duly certified as a surveyor intern by the board.

4. Practice of Surveying –

a. The term “Practice of Surveying,” as used in this Act, shall mean providing, or offering to provide, professional services using such sciences as, **but not limited to**, mathematics, geodesy, and photogrammetry, and **relevant aspects of the law**, involving **both BOTH**:

1. the making of geometric measurements and gathering related information pertaining to the physical or legal features of the earth, improvements on the earth, the space above, on, or below the earth AND

2. providing, utilizing, or developing the same into surveying products such as graphics, data, maps, plans, reports, descriptions, or projects.

deliverables, the purpose of which is to establish a legal basis for the reported locations, shapes, positions, and sizes.

Professional services include acts of consultation, investigation, testimony evaluation, expert technical testimony, planning, mapping, assembling, and interpreting gathered measurements and information related to any one or more of the following:

i. Determining by measurement the configuration or contour of the earth’s surface or the position of fixed objects thereon

ii. Determining by performing geodetic surveys the size and shape of the earth or the position of any point on the earth

iii. Performing an original or retracement survey ~~Locating, relocating, establishing, reestablishing, or retracing property lines or boundaries~~ of any tract of land, road, right of way, or easement

iv. Making any survey for the division, subdivision, or consolidation of any tract(s) of land

v. Locating or laying out alignments, positions, or elevations for the **design and construction of fixed works with sufficient accuracy and precision to be relied upon for the provision of architectural and engineering services related to fixed works.**

vi. Determining, by the use of principles of surveying, the position for any survey monument (boundary or nonboundary) or reference point; establishing or replacing any such monument or reference point.

vii. Creating, preparing, or modifying electronic, computerized, or other data, relative to the performance of the activities in items **a-f-i-vi** above

viii. Applying surveying measurement and mapping techniques for the elucidation of questions before courts of law and equity (forensic surveys) relating to items i-vii above.

b. An individual shall be construed to practice surveying, within the meaning and intent of this Act, if he or she does any of the following:

1. Engages in or holds himself or herself out as able and entitled to practice surveying
2. Represents himself or herself to be a professional surveyor by verbal claim, sign, advertisement, letterhead, or card or in any other way
3. Through the use of some other title, implies that he or she is a professional surveyor or licensed under this act

c. Unlicensed persons who hold certification from the GIS Certification Institute, the American Society of Photogrammetry and Remote Sensing or substantially similar certification as approved by the Board may provide the services and products described above in 4.a.i., 4.a.ii., and 4.a.vii., as it applies to 4.a.i. and 4.a.ii., provided such services and products include:

1. **Disclaimers of use clearly indicating that they:**
 - i. **Are NOT intended to be used as a surveying deliverable.**
 - ii. **Are NOT suitable for legal and cadastral purposes.**
 - iii. **Cannot be presumed to have sufficient accuracy and precision to be relied upon for the provision of architectural and engineering services related to fixed works.**
2. **Metadata must be included in a digital format that is easily accessible and readable by users of the digital geographic data, and clearly affixed to the printed copies of such data. Metadata should include the method of compilation, geographic reference frame (i.e., coordinate or linear reference system), data source(s), and creation date(s), accuracy, precision, creator, owner, and point of contact, for the services or products.**

d. The use of photogrammetric methods or similar remote sensing technology to perform those parts of the practice of surveying as defined in 4.a.i. and 4.a.ii., and 4.a.vii. as to the activities in items 4.a.i. and 4.a.ii. of this section may be performed only under the direct control and supervision of a professional surveyor or professional photogrammetrist who maintains a current title of "Certified Photo-grammetrist" from a national scientific organization having a process for certifying photogrammetrists.

5. Inactive Status – Licensees who are not engaged in surveying practice that requires

licensure in this jurisdiction may be granted inactive status. No licensee granted inactive status may practice or offer to practice surveying in this jurisdiction unless otherwise exempted in this Act.

C. Board – The term "Board," as used in this Act, shall mean the jurisdiction board of licensure for professional engineers and professional surveyors, hereinafter provided by this Act.

D. Jurisdiction – The term "Jurisdiction," as used in this Act, shall mean a state, the District of Columbia, or any territory, commonwealth, or possession of the United States that issues licenses to practice and regulates the practice of engineering and/or surveying within its legal boundaries.

E. Responsible Charge – The term "Responsible Charge," as used in this Act, shall mean direct control and personal supervision of engineering or surveying work, as the case may be.

F. Rules of Professional Conduct – The term "Rules of Professional Conduct," as used in this Act, shall mean those rules of professional conduct, if any, promulgated by the board as authorized by this Act.

G. Firm – The term "Firm," as used in this Act, shall mean any form of business or entity other than an individual operating as a sole proprietorship under his or her own name.

H. Managing Agent – The term "Managing Agent," as used in this Act, shall mean an individual who is licensed under this Act and who has been designated pursuant to Section 160.20 of this Act by the firm.

I. Rules – The term "Rules," as used in this Act, shall mean those rules and regulations adopted pursuant to Section 120.60 A, Board Powers, of this Act.

J. Signature – The term "Signature," as used in this Act, shall be in accordance with the Rules.

K. Seal – The term "Seal," as used in this Act, shall mean a symbol, image, or list of information.

L. Licensee – The term "Licensee," as used in this Act, shall mean a professional engineer or a professional surveyor.

M. Person – The term "Person," as used in this Act, shall mean an individual or firm.

N. Authoritative – The term "Authoritative," as used in this Act ~~or Rules promulgated under this Act~~, shall mean being presented as legally reliant, trustworthy, and competent when used

to describe products, processes, applications, or data resulting from the practice of surveying surveying deliverables.

O. Disciplinary Action – The term “Disciplinary Action,” as used in this Act, shall mean any final written decision or settlement taken against an individual or firm by a licensing board based upon a violation of the board’s laws and rules.

P. Positional accuracy – The extent to which horizontal and vertical information on a map or in a digital database matches true or accepted values that are relative to the earth’s surface or other reference datum

Q. Georeferenced – Being referenced, measured, or described in spatial terms relative to the earth’s surface or other reference datum

R. Surveying deliverables – Any authoritative maps, graphics, database, plans, reports, descriptions, applications, projects or other similar electronic or printed deliverable that shows the authoritative location of features or coordinate systems. Surveying deliverables provide spatial information to a level of positional accuracy, whether that accuracy is stated, regulated, or implied products, resulting from the practice of surveying

as defined in Section B.4 of this Act, and fit for the intended use of the surveying service(s) provided.

S. Original Survey - The term “Original Survey” as used in this Act, shall mean performing a boundary survey for purposes of locating, on the ground and describing the location of, an interest in real property that has not been previously described in a document or documents conveying an interest in that real property. The term includes the subdivision of a section or portions of a section of land under common ownership in the United States Public Land Survey System, where no such subdivision has been previously conducted on the ground.

T. Retracement Survey - The term “Retracement Survey” as used in this Act, shall mean performing a boundary survey of real property that has been previously described in a document or documents conveying an interest in that real property by applying the appropriate boundary law principles governed by the facts and evidence found in the course of performing the survey. The term includes retracing the lines and corners of a previous original survey of real property.

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[Model Rule Section 210.25 - THIS MODEL RULE SECTION IS TO BE INCLUDED AS A PART OF THE MODEL LAW AS ORIGINALLY PROPOSED BY THE SURVEYING/GIS WORK GROUP WHEN THEY WERE ORIGINALLY WRITTEN.]

Inclusions and Exclusions to the Practice of Surveying

UA. Activities Included within the Practice of Surveying

Activities that must be accomplished by or under the responsible charge of a professional surveyor (unless specifically exempted in subsection **VB** of this section **or as otherwise provided for in Section B.4.c. of this Act**)

include, but are not limited to, the following:

1. The creation of maps or georeferenced databases representing authoritative locations for boundaries, the location of fixed works, or topography. This includes maps and georeferenced databases prepared by any person or government agency where that data is provided to the public as a surveying deliverable.
2. Original data acquisition, or the resolution of conflicts between multiple data sources, when used for the authoritative location of features within the following data themes: geodetic control, orthoimagery, elevation and hydrographic, fixed works, private and public boundaries, and cadastral information
3. Certification of positional accuracy of maps or measured survey data
4. Adjustment or authoritative interpretation of raw survey data
5. Geographic Information System (GIS)-based parcel or cadastral mapping used for authoritative boundary definition purposes wherein land title or development rights for individual parcels are, or may be, affected
6. Authoritative interpretation of maps, deeds, and other land title documents to resolve conflicting data elements
7. Acquisition of field data required to authoritatively position fixed works or cadastral data relative to geodetic control

8. Analysis, adjustment or transformation of cadastral data of the parcel layers with respect to the geodetic control layer within a GIS resulting in the affirmation of positional accuracy

VB. Activities Excluded from the Practice of Surveying

A distinction must be made in the use of electronic systems between making or documenting original measurements in the creation of surveying deliverables, versus the copying, interpretation, or representation of those measurements in such systems. Further, a distinction must be made according to the intent, use, or purpose of measurements derived from electronic systems to determine an authoritative location versus the use of those measurements as a reference for planning, infrastructure management, and general information. The following items are not to be included as activities within the definition of the practice of surveying:

1. The creation of general maps
 - a. Prepared by private firms or government agencies for use as guides to motorists, boaters, aviators, or pedestrians
 - b. Prepared for publication in a gazetteer or atlas as an educational tool or reference publication
 - c. Prepared for or by education institutions for use in the curriculum of any course of study
 - d. Produced by any electronic or print media firm as an illustrative guide to the geographic location of any event
 - e. Prepared by laypersons for conversational or illustrative purposes. This includes advertising material and users guides.
2. The **transcription incorporation** of previously **produced survey data and/or** georeferenced data into a GIS or LIS by manual or electronic means, and the maintenance thereof, provided the **incorporated** data are clearly not intended to indicate the authoritative location of property boundaries, the shape or contour of the earth, or fixed works. **Incorporated data must include appropriate metadata describing, at a minimum, that it cannot be used as a survey deliverable.**

3. The **transcription incorporation** of public record data, without modification except for graphical purposes, into a GIS- or LIS-based cadastre (tax maps and associated records) by manual or electronic means, and the maintenance of that cadastre, provided the data are clearly not intended to authoritatively represent property boundaries **as they were surveyed**. This includes tax maps and zoning maps.

4. The preparation of any document by any federal government agency that does not define real property boundaries. This includes civilian and military versions of quadrangle topographic maps, military maps, satellite imagery, and other such documents.

5. The incorporation or use of documents or databases prepared by any federal agency into a GIS/LIS, including but not limited to federal census and demographic data, quadrangle topographic maps, and military maps

6. Inventory maps or databases created by any organization, in either hard-copy or electronic form, of physical features, facilities,

or infrastructure that are wholly contained within properties to which they have rights or for which they have management responsibility. The distribution of these maps or databases outside the organization must contain appropriate metadata describing, at a minimum, the accuracy, method of compilation, data sources and dates, and disclaimers of use clearly indicating that the data are not intended to be used as a surveying deliverable.

7. Maps and databases depicting the distribution of natural resources or phenomena prepared by foresters, geologists, soil scientists, geophysicists, biologists, archeologists, historians, or other persons qualified to document such data

8. Maps and georeferenced databases depicting physical features and events prepared by any government agency where the access to that data is restricted by statute. This includes georeferenced data generated by law enforcement agencies involving crime statistics and criminal activities.

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Thoughts on Professional Practice and Education

Article 5: Removing Examination Pre-requisites

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

This is the fifth article I have prepared in the series offering thoughts on professional practice and education. In this article, I wish to discuss the timing of professional exams. In particular, I wish to advocate allowing an applicant to take their licensing exams before obtaining any required experience.

There are two common models of examination sequence found in the United States. The first model, that appears to be most common at the present time, requires the applicant take the professional surveyor exam and state specific exam after the experience requirements have been met.

The second model is to permit an applicant to take all three exams at or near graduation and before meeting minimum qualifications.

There was a third model that may still be present in some states. The third model was to require the experience first then allow the applicant for licensing to take all the exams within a short window of time. When I was first licensed almost fifty years ago, I took the first exam one day and the second exam the very next day.

In this article, I would like to advocate that states allow an applicant to take the exams on sequential days at or near graduation. I offer two reasons for my position.

For my first reason, I would suggest that taking the professional exams near graduation is the best time in life's journey to schedule and have time to take the exams. By the time the graduate achieves the pre-requisite experience for licensure, they are often married – perhaps with young children, involved in community activities, and have a full employment commitment. It is difficult to find time to study or even take time off from work for testing. College breaks are usually far less stressful and a less busy time than the hectic and stressful work schedule a graduate will encounter after graduation. To emphasize this, let me remind surveyors that as a full-time student in college, the student could count on two to three weeks off at Christmas, one week off during Thanksgiving, and a one or two-week spring break. College breaks were known well in advance, allowing for professional test scheduling.

Once the graduate is employed, vacation time or personal days must often be used for testing. Time off from work must often be scheduled in advance and authorized only when work allows. While college can be stressful, the stress of college often pales in comparison to balancing family responsibility, home, and work commitments.

The second reason for allowing all tests while in college or shortly after graduation is the extent of retained surveying knowledge. Broad knowledge of surveying is usually at a maximum retention just before or soon after graduation. Therefore, the best chance to pass all three exams with minimum study is at or near graduation.

Some would argue that testing the graduate on knowledge retention after the graduate has some experience is a reasonable procedure to protect the public's safety. Perhaps this statement is true. Yet, on that basis, all licensed surveyors should be periodically tested from time to time to insure knowledge retention after the passage of time. I suspect there are very few licensed surveyors that would advocate that they be subject to periodic retesting to ensure knowledge retention.

Having given my opinion, I now offer advice by suggesting professional societies encourage statute or rule changes allowing all exams be taken soon or at graduation. Of course, the soon-to-be graduate has another option. The student can apply to test in a state that does allow all testing at or near graduation. The applicant does not need to journey to a particular state since NCEES offers the same exams at testing centers throughout the United States. Perhaps the applicant would have to delay taking the state specific exam until they are eligible for licensing within that state. Of course, the one hurdle that may arise from this recommendation is a state that will not accept the NCEES test score for an exam taken before experience was achieved. I know of at least one state that will not accept the PE exam score if the PE exam was taken before experience was met. I know this does not make much sense but bureaucracies and their rules often do not make sense.

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



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