

# MISSOURI SURVEYOR

A Quarterly Publication of the  
Missouri Society of Professional Surveyors

Jefferson City, Missouri

September 2026



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## CALENDAR OF EVENTS

### 2026 & 2027

#### October 1-3, 2026

69th Annual Meeting and Convention  
Oasis Hotel, Springfield, MO

#### December 11, 2026

Zoom Call, Board Meeting  
MSPS Office, Jefferson City, MO

#### April 28-30, 2027

49th Annual Spring Workshop  
Lodge of the Four Seasons, Lake Ozark

#### September 9-11, 2027

70th Annual Meeting and Convention  
St. Charles Convention Center and  
Embassy Suites

**Front Cover:** A mid-July staking of a farm split boundary in the middle of a soybean field near Malta Bend, Missouri. The clients were ok with transiting the field with a UTV as it would be nearly impassable by foot through the crop otherwise. A four-foot-tall lath is nearby the corner. US Highway 65 and an ethanol production facility are in the background. Photo by Katie Jones, LSI.

**Back Cover:** A standing (dead) original GLO Post Oak snag currently held upright by a cedar tree also in poor condition. This bearing tree was originally taken by US Deputy Surveyor Spaulding circa 1847 as an accessory to the Quarter Corner between Sections 9 and 10, T24N, R18W, in rural Taney County. Photo by Katie Jones, LSI.

Chris Ferguson, Editor  
Austin DeSain, Editor



## Notes from Editor Ferguson's Desk

*Chris Ferguson, President-Elect, Editor*

Here's hoping everyone had a busy and profitable summer as the long, hot days draw to a close. And perhaps even more so, that you all took time for yourselves, your families and friends. Work's important for sure, but the balancing act is up to each of us to make sure we're working for the right reasons and not simply toiling for its own sake. I'm certain you all get those calls that need surveys "like their next breath of air!";

however, we all know there's no such thing as an emergency survey. To date, no lives were saved or lost by waiting on me to stake a boundary.

This issue is the Annual Meeting issue, and there will be plenty of material for the reader to peruse there. It's also a rather busy "news cycle" in the Missouri PLS world, and we strive to keep current events (as well as a quarterly newsletter can) at your fingertips. Finally, always remember that one of our most engaging and informative sources of newsworthy items comes from each and every one of you. Your contributions are welcome (see the back page for style and format) and us editors look forward to receiving your material to get a glimpse of other facets of our practice, be it interesting jobsites, monuments, or people to share with our readers.

Looking forward to seeing everyone at the 69<sup>th</sup> Annual Meeting! 🇺🇸

*Chris*



## Notes from Editor DeSain's Desk

*B. Austin DeSain, P.L.S., Director, Editor*

A long rain season, followed by a hot summer and we're almost into fall. I always look for the upside, and with a hot summer comes the opportunity to work long days and get ahead after a difficult-to-schedule rainy March, April and May. My department ran six crews one week, which I'm taking as a big personal accomplishment since the last decade has been a struggle to get up to four. I hope you're all finding motivation to grab opportunities. Remember to be safe surveying in the heat, while covered in sweat and tick spray.

*(continued on page 4)*

# THE MISSOURI SURVEYOR

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## President's Message

**Mark W. Wiley, PLS**



It is with mixed emotions that I sit down to write my last President's Message. It has been an honor to act as your President. I'm pleased that no great scandal was brought out during my term. I'm excited to leave and have Mr. Ferguson take over, carrying our society into the future. May peace be with him as he takes on the responsibility of the Presidency. I'm also pleased with the hard work others have done while I've been in office.

Thank You to Lynne M. Schlosser for her dogged determination to stay after both the Recording Fee increase for the Land Survey Program as defined in Senate Bill 938 and the Missouri GIS Advisory Council as defined by Senate Bill 959. She has been watching these for what seems like many years now. Well done!

Another well done is needed for the efforts of Ray Riggs and Darrell Pratte who testified on behalf of the legislation in what had to be the biggest snowfall of the winter 2025. None of this would have happened if not for our own Sandra Boeckman staying on top of these bills coordinating our people and getting them where they needed to be when they needed to be there.

We had a very exciting Spring Workshop which started early to accommodate a program to teach and certify surveyors the Certified FEMA Surveyors (CFS) program. We had 19 participants in the course which started on Tuesday and ended Friday with a lengthy exam. At the end of the day there were 12 who passed the test and can now add CFS to their credentials, Congratulations.

The Land Surveyor Intern program grew by 14 candidates this year. All but two of them have Missouri addresses. We can also greet a total of 39 new Missouri Professional Land Surveyors with 20 of them calling Missouri home.

It is interesting the kind of things you learn as President. Folks will track you down when your name has president attached to it and you are listed on the MSPS web site. I know there were two calls from individuals upset with their local surveyor, not for any great error they had made marking the line just kind of because. Perhaps it is good for there to be someone who listens to their lament and can be somewhat sympathetic even if you don't agree with them on the cause. I was able to redirect a Federal Surveyor who had signed a contract for some serious survey work in Missouri and had become concerned about where that effort was going. I can only hope and pray that those worries were dealt with, and no mischief has been sown in our state.

*(continued on page 4)*

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## Notes from Editor DeSain's Desk *(continued)*

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This issue covers a fascinating biographical look at Colonel Stephen Long, who led several expeditions to map riverways including the Mississippi, Arkansas, Fox and Missouri, with a submission by Jeffrey Pauk. Congratulations to Jamie Elliott on retirement from the Land Survey Program. Dan Govero figured out a way to give back to the Jefferson County parks and trails and decided to take the bull by the horns. A few state highest point monuments, another great member spotlight, helpful PLSS template guides, another Elgin math problem, and the next part of the Genesis of Missouri round out this edition of the Missouri Surveyor Newsletter.

We could use photos, articles, reflections or foresight from members for the editions ahead. If you trip over a monument, or break into new technology or workflows, we'd love to hear about it.

See you all at the 69<sup>th</sup> Annual Meeting! 🇺🇸

*Austin*

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## President's Message *(continued)*

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I've had another heart-breaking moment when a loved one came to me with the desire to create a burial plot on their parcel. This was not the first time I've had this request. My first experience with putting a family plot together was a gentleman in his late forties who had been buying land for awhile in the hope of retiring to this estate and living out his later days. Given the diagnosis of late-stage cancer he was trying to get everything in place as his health was failing. In a third-class county this was straight forward and a big thank you to the State Land Surveyor for having that legislation on his web site. My latest experience was for a three-month-old child who had died while taking a nap at grandpa and grandma's house. Mom thought he should be buried at grandma and grandpa's home. In this case we were dealing with a first-class county. As the surveyor we must always remember when we are and are not in Kansas anymore, Toto. We will never understand why this happens. Someone gets cut down in the prime of life while others don't learn to walk. I know it gives us, as members of the human race, the ability to step up and show our humanity.

Surveyors are forever bringing closure to those in our community we live and breathe with. Sometimes it is a new parcel that kids and grandkids can move to and live on. Sometimes it is a new health care facility for us as we get older or a new coffee shop where we can meet with friends and swap the lie of the day. In closing it has been my honor to serve as the President and hope to swap stories with all of you soon

Peace be with each of you. 🇺🇸

*Mark Wiley*



## National Trig-Star Committee Selects Winners of the 2026 National Trig-Star and Teaching Excellence Awards

The National Society of Professional Surveyors (NSPS) is pleased to announce the recipients of the 2026 Richard E. Lomax National Trig-Star Awards. The Trig-Star Board met on June 12, 2026, to determine the top three high school students from the national examinations submitted by state winners. This year there were 29 state winners submitted.

### The Richard E. Lomax National Trig-Star Awards are as follows:

FIRST PLACE



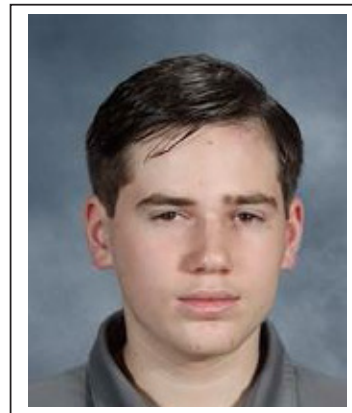
**Rohit Thomas (\$4000)**  
Cherry Creek HS  
Colorado

SECOND PLACE



**Jacob Braach (\$2000)**  
Flathead HS  
Montana

THIRD PLACE



**Leeoz Nebat (\$1000)**  
Ed W. Clark HS  
Nevada

### The Richard E. Lomax National Teaching Excellence Awards are as follows:

**James Padavic (\$1250)**  
Cherry Creek HS  
Colorado

**Carly Forrest (\$750)**  
Flathead HS  
Montana

**Cassandra Arquette (\$500)**  
Ed W. Clark HS  
Nevada

### State Winners in Order of Finish:

- 1 Rohit Thomas, CO
- 2 Jacob Braach, MT
- 3 Leeoz Nebat, NV
- 4 William Davis, IA
- 5 Chole Elliott, CA
- 6 Luke Johnson, SC
- 7 Shourya Goyal, SD
- 8 Colten Sederstrom, IN
- 9 Tate Bogdanchik, AL
- 10 Benjamin Harris, KS

- 11 Zhiyi Ni, WI
- 12 Hari Maiyya, FL
- 13 Colin Cowart, OR
- 14 Sean Lu, CT
- 15 Aryan Punjabi, MI
- 16 Rhett Thomas, UT
- 17 Chase Eberhardt, NH
- 18 Hanna James, MN
- 19 Nischal Sia Tangudu, IL
- 20 Benjamin Bussert, NC

- 21 Jinbao Zhen, AK
- 22 Simone Monti, GA
- 23 Sam Haubner, KY
- 24 Logan Fenicle, OH
- 25 Josie Cox, ID
- 26 Philip Kazantsev, NJ
- 27 Thomas Mannion, ME
- 28 Derek Kaczynski, ND
- 29 Corbyn Guse, WY

**There were 141 schools and over 2000 participants in the local competition.  
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# Colonel Stephen Long: Engineer, Inventor, Surveyor, Explorer

Originally published in the Madison County Historical Society, MCHS News,  
Vol. 14 No. 2, March 2026

by Jeffrey Pauk

In the back of Alton City Cemetery is a gravesite which contains the remains of Stephen Harriman Long, the man who created the first detailed map of the entire valley that the cemetery overlooks. In his first major military assignment, he was given orders to survey the Upper Mississippi River surrounding St. Louis, including the confluences of the Missouri and Illinois River valleys, to locate existing fortifications and choose sites for future forts. The work was impressive, but it would be dwarfed by the assignments which followed. Between 1816 and 1823, he led six expeditions that mapped 26,000 miles, more than the cumulative totals of Lewis and Clark, Zebulon Pike, and John C. Fremont. Sadly, the contributions made by Stephen Long and his team in exploring a large portion of the United States are often overlooked.

Long was born in Hopkinton, New Hampshire, on Dec. 30, 1784, to Moses and Lucy (nee Harriman) Long. His father was a soldier during the Revolutionary War, and Long family history states that Moses served as one of George Washington's bodyguards. He was a cooper and farmer after the war and made sure that his sons were all trained in those vocations. Stephen was the second oldest of 13 children. An older sister died in infancy. He had eleven younger siblings, five of whom moved to Alton, Illinois, to raise their families.

In 1809, Long earned a Bachelor's degree from Dartmouth College. Upon graduation, he began teaching mathematics and working as a surveyor and inventor. His interest in these vocations, as well as scientific discovery, would soon drive him to larger and greater achievements.

In 1814, he was discovered by Major Isaac Roberdeau of the Army Topographical Engineers who was impressed by the type of hydraulic engine Long invented. Roberdeau recommended Long to the Chief of Engineers, General Joseph Swift, who met with Long and reviewed his invention. Swift was impressed and encouraged Long to join the Army Corps of Engineers.



*(continued on next page)*

*Portrait of Stephen Long circa 1819 by Charles Wilson Peale. Peale's son, Titian Ramsay Peale, also an artist, would accompany Long on several expeditions. Some of Peale's instruments can be seen at the Museum of Westward Expansion in St. Louis. (National Park Service)*

## Colonel Stephen Long *(continued)*

At first hesitant, Long ultimately applied for and was offered a commission as a Second Lieutenant. He was quickly appointed to the position of assistant professor of mathematics at West Point Military Academy. After a year, he realized that the Topographical Engineers, an elite group within the Corps of Engineers, was his career goal.

At the time, the Army was making deep cuts in personnel and the Topographical Engineers was comprised of only eight officers. Fortunately, Long had made the right friends and associates during his brief career. He received his promotion in April 1816, as a Brevet Major, and was assigned to serve in the Southern Division under Major General Andrew Jackson. He reported to General Smith at Fort Belle Fontaine, north of St. Louis, at the confluence of the Missouri River.

Among the forts located on his first military survey map (referenced previously) was Fort Russell which was labeled “Camp Russell” and drawn as a square fort with two blockhouses. Congress considered this to be a strategic necessity because despite the War of 1812 ending a year earlier, the British influence remained strong in the upper Mississippi River and Great Lakes regions.

Among the duties given Long in the summer of 1816 was to select a new location for Fort Clark near Lake Peoria and establish a design for the fortification. Upon his return, he was sent out to map the unsettled parts of the Illinois and Indiana Territories. At its completion, Long traveled back to Washington, D.C., and New York to prepare his maps and reports.

Among the recommendations he gave was a suggestion to build a canal through the area of swamp between the Illinois River and Lake Michigan and to extend the newly constructed National Road from Wheeling, West Virginia westward through Ohio, Indiana, and the Illinois Territory to the Mississippi River. It is important to note that many of his suggestions were brought to fruition within the next two decades.

In March 1817, Long wrote to President James Monroe about his desire to lead another expedition to map the upper Mississippi River, Great Lakes, and tributaries into the Great Lakes. He proposed the building of a steamboat to allow for faster travel and the ability to cover a larger area. In May, he was ordered to map the Mississippi as far north as Prairie du Chien (Wisconsin), follow the Wisconsin River to the portage with the Fox River, map the Fox River to Green Bay, and map Green Bay. Instead of a steamboat, he was issued a six-oared skiff. It took three weeks to travel from Fort Belle Fontaine to Prairie du Chien.

On June 23, when they arrived at Prairie du Chien, Long decided to extend the exploration and map the Mississippi River to the Falls of St. Anthony, present day Minneapolis. There he examined two locations for military posts that had been recommended by

### THE LONG FAMILIES IN ALTON

Five of Moses and Lucy (Harriman) Long’s children have called Alton home during their lives. The couple raised their children in Hopkinton, New Hampshire, and of the 13 born, ten grew to adulthood.

Stephen Harriman Long married Martha Hodgkiss of Philadelphia on March 3, 1819. They moved to Alton in 1856 after multiple assignments with the military around the country.

Of their six children, their daughter Lucy Breckenridge (wife of Dr. Marcus Breckenridge) moved to Alton and raised her three children there.

The Long home at 800 Franklin St. in Alton still stands.

Enoch Long came to Alton in 1819 in pursuit of a new home for himself and his bride. Moving his family there in 1820, he was a shop owner, a cooper, and an active church leader. An ardent friend and supporter of Elijah Lovejoy, he led the de-fenders of Lovejoy’s printing press in 1837. About three years after Lovejoy’s murder, Long moved north to Galena, Illinois and, later, west to Iowa.

Abigail Long married James Colby in 1826. In 1850, they moved to Alton. Some of their children followed.

Maj. George Washington Long attended West Point. Upon graduation in 1826, became an instructor in artillery and eventually accepted an assignment as an engineer. He worked with Robert E. Lee on the survey of the Mississippi River at St. Louis in 1842 to determine a way to alter the river’s course to stop erosion on the Illinois side. He settled on a farm on Grafton Road northwest of Alton and was one of the primary experts in hydrography for major rivers. He proposed a solution for the severe erosion of the Eastern bank of the Mississippi River along Western Madison County. His solution was the creation of a channel to take the Missouri river northeastwardly to empty into the Mississippi River near Portage de Sioux.

Dr. Benjamin Franklin Long and his wife Lucy came to Alton in 1831 in search of a home in the West. They had two sons who were raised on the family farm on Grafton Road, next to his brother George’s farm.

Edward Preble Long was married and known to have four children. He died in Alton in 1847, but little other information has been found.

*(continued on page 10)*



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## Colonel Stephen Long *(continued)*

### STEPHEN H. LONG AND CAMP RUSSELL

The National Archives has a set of 10 drawings from Stephen Long's 1816 expedition. One of those maps is of the American Bottom and includes the confluences of the Mississippi River with the Missouri and Illinois Rivers. When analyzing this map, there are several notable landmarks. The settlements of St. Louis, Carondelet, St. Charles, Cahokia, Edwardsville, and Portage de Sioux are all noted as well as the location of "Camp Russell."

By establishing the latitude and longitude of the settlements, entering them in a mapping program, and overlaying the image of his map over these positions, a relative scale factor and rotation can be determined. Using Carondelet and Portage de Sioux as a base line, it was discovered that Long's locations of St. Charles, Cahokia, and St. Louis all fell within less than half a mile of the physical locations. This process is called rectification.

Edwardsville, however, is shown about four miles south of the true location of the original town. The most likely reason for this discrepancy is that all of the other settlements would have been visible from the bluffs overlooking the river valley and could be triangulated, whereas Edwardsville would have had to be mapped by other means. However, it is safe to assume that since the streams and other landmarks surrounding Edwardsville would not be visible from the bluffs, that they were located by the same means as Edwardsville, but the scale would be identical to the rest of the map. It is known that the center of Edwardsville at that time was near the original Lincoln School on North Main Street.

By translating the map to match the location of the old Lincoln School and rotating the map slowly, many of the existing waterways surrounding Edwardsville as shown on Long's map begin to match those which currently exist. There are discrepancies, but most of that would be due to assumptions Long made in drawing his map. He was working as quickly as possible and would only identify creeks in certain locations and make estimations on where those connected with other observed creeks.

The key is that it becomes evident that large portions of Burdick, Cahokia, Mooney, and Mill Creeks closely align with Long's map. As a result, his location of Fort Russell has given current researchers fresh evidence to its location which will be addressed in the July newsletter (MCHS News).

Zebulon Pike in 1806. Long also examined and made recommendations on improvements to Forts Edwards (Warsaw, Illinois), Armstrong (Rock Island, Illinois), and Crawford (Prairie du Chien, Wisconsin), before returning to Fort Belle Fontaine.

In September, General Smith ordered Long to map the Arkansas River to where it met the Verdigris River in Northeastern Oklahoma. He selected the site of Fort Smith (Arkansas) at the confluence of the Poteau and Arkansas Rivers. He developed plans for the defenses while 70 soldiers and officers ascended the Arkansas River to help build and occupy the new fort. He was then sent overland to explore the rivers in Oklahoma and routes to Hot Springs, Arkansas, arriving there in December 1817, before again returning to Fort Belle Fontaine.

While compiling his report in early 1818, Long again sent a request to his superiors to explore parts of the frontier by steamboat. In his report, he recommended continuing the operation of Forts Howard (Green Bay), Dearborn (Chicago), and Armstrong (Rock Island), and the abandonment of several others. He advised that the abandoned forts be replaced with new forts located further north and west. One site he recommended was at the confluence of the St. Peter's and Mississippi Rivers, which would eventually become Fort Snelling.

General Smith had acquired a high regard for Long's opinions on developing new fortifications and asked him about the Missouri River Valley, despite Long never having been there. Long suggested sites at the Kansas and Platte Rivers, the Mandan Villages in North Dakota, and at the Yellowstone River. In addition to the locations, he also recommended armed and fortified boats for river travel, and a heavier cavalry presence. He also suggested that men in the forts be required to tend vegetable gardens for the sustenance of the unit. Within a few months of his suggestion, Secretary of War John C. Calhoun ordered frontier commanders to use enlisted men as farmers whenever possible.

By the summer of 1818, Long had completed his reports from the prior year and set about producing a large map of the central United States. Within a few months the Yellowstone expedition was being planned to provide better maps and information of the area. Through all of this, Long had warned of heavy British influence through trading in the area, especially with the native tribes. He was concerned that without a heavy American presence, the United States could not successfully defend the

area in another war with the British. Secretary Calhoun acted immediately upon these recommendations and ordered that troops be prepared to move west to build and man forts. When it was realized that it wasn't possible to organize and move troops by the end of 1818, the plan was reorganized to one more easily achieved.

Long had proposed that he lead a scientific expedition to be conducted while the troops were being moved upriver and once again advocated the use of a steamboat. The Western Explorer, a custom stern paddle wheeler, was constructed in the winter of



*The 1816 Long Map has great detail that doesn't all appear on this much smaller copy of the original, so we had labeled places he identified on the map. (National Archives)*

1818-1819. With the support of the American Philosophical Society, a team of scientists, boat crew and military personnel were assembled by Long. At the same time, Long was courting Martha Hodgkins of Philadelphia, and they married on March 3, 1819. Two months later, the group of explorers headed down the Ohio River to St. Louis. They began their long Western expedition on June 21, 1818. Travel on the muddy Missouri River proved to be difficult. The murky water hid the sand bars, and they were constantly having to avoid piles of driftwood. In addition, the boiler had to be cleaned regularly because the river water contained so much sediment. By September 1819, the Western Explorer had made it as far as present-day Omaha. Because of the river difficulties and mechanical problems that plagued the boat, the expedition was several hundred miles short of their anticipated wintering location. The crew set about creating winter quarters and once situated, Long headed overland back to St. Louis.

Those that remained behind at the winter quarters (called Engineer Cantonment) continued to acquire a wealth of information on the surrounding area as well as its native inhabitants. This is one of the earliest cases of a professional scientific staff being assembled at a United States Government research station.

From St. Louis, Long continued on to Washington to report to Congress on the excursion and answer for the expense and lack of progress. The expedition was publicly considered a failure and there was a real possibility of it being cancelled entirely. 🇺🇸

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# Jamie Elliott Retires After Long Career with Land Survey Program

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The Land Survey Program would like to announce the retirement of Jamie Elliott effective July 1, 2026. Jamie began his career with the Land Survey Program in 1991, under the direction of Mr. Robert (Bob) Myers, PE, PLS and has served under every State Land Surveyor since. Jamie took on many roles during his tenure with the Program. He has assisted with Geodetic Projects, Cadastral Surveys, oversaw the Cooperative Remonumentation Program, and managed the certified Land Corner Documents (now numbering well over 120,000) filed with the Land Survey Program Repository.

He was always willing to lend a hand when needed, whether it was assisting the Repository with document scanning and filing, or consulting a property owner about damaged witness trees. Some of his most enjoyable duties

involved spending time in the field looking for original GLO evidence and especially public outreach; such as career days at local schools and sharing his excitement with children about surveying. Jamie enjoyed interacting with the professional surveying community as well as the general public; and was always ready to assist them whenever needed.

Jamie truly enjoyed his career with the Land Survey Program and will be missed by all. Far from being idle, he is looking forward to spending time with his family (especially his grandchildren), traveling, and of course - fishing! A retirement party was held on June 19th celebrating his many accomplishments and memories with the Land Survey Program. 🇺🇸



Jamie at Norfolk Lake on the Missouri-Arkansas State Line (LSP Photo)



Jamie (center) with the Land Survey Program Staff on his last day (LSP Photo)

MISSOURI SOCIETY OF PROFESSIONAL SURVEYORS

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*Registration Deadline is Monday, September 14, 2026*

# County Surveyor Starts Parks and Trails Nonprofit

*Originally Published by Abby Stetina, For the Leader*

Dan Govero, a surveyor and president of the Jefferson County Growth Association, has launched a nonprofit corporation dedicated to enhancing the county's parks and trails.

Govero, who owns Govero Land Services in Imperial, said the nonprofit's mission is to provide quality public spaces in the county that contribute to building a healthy community and a better environment. The nonprofit is called Friends of Jefferson County Parks and Trails.

"We're just barely getting started," Govero said. "There's been talk for years and years of how to get money for the parks, because the county doesn't give them much, and so I went ahead and set up a nonprofit corporation. A lot of people think this is a great idea, but nobody has done anything, so I took the bull by the horns and made it into a nonprofit."

Govero said he's looking to recruit members for the nonprofit, especially those to sit on the board.



*Dan Govero*

Govero said he was inspired to form the Jefferson County nonprofit by Forest Park Forever, a private nonprofit conservancy founded in 1986 to maintain the 1,300-acre park in St. Louis. The nonprofit manages capital projects, such as renovating the park's entrances and updating the Boathouse restaurant and deck. Separated from the Zoo Museum Tax District, Forest Park Forever receives its funding from private donors.

While it's still early in Friends of Jefferson County Parks and Trails' existence, Govero said the plan is to seek grant funding and private donations to benefit the county's public parks. City-operated parks would also be eligible to receive funding, he said.

Once enough funding is raised, Govero said the nonprofit will begin accepting applications for projects from park managers.

The Jefferson County Parks and Recreation Department manages 12 publicly accessible parks spanning roughly 280 acres. These parks include hiking trails, fishing and boating opportunities, playgrounds and sports fields, according to the Parks website.

The county's municipalities also boast numerous public parks, including Larry G. Crites Memorial Park in Festus, a 100-acre park with a fishing lake, pavilions and ball fields. Arnold's 68-acre City Park also has a fishing lake and is home to the city's farmers market, which runs May through October.

Govero said he wants to ensure Jefferson County's parks remain a destination and believes there's room to grow at many parks. "We want to upgrade things in our parks and trails, keep them up to date," he said. For information, call Govero at his office, 636-464-9380. 🇺🇸





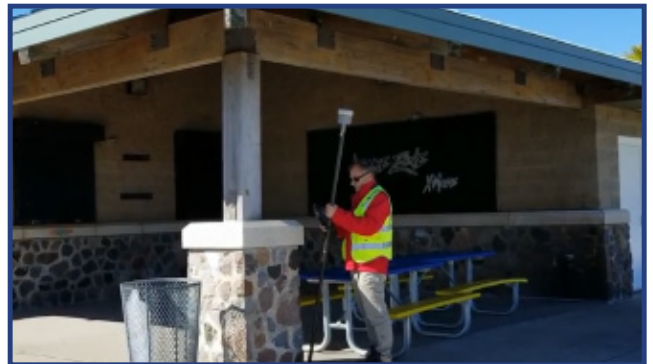
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# PLSS Template Guide

by State Land Survey Program

## LSI & CMI TIPS

### ❖ TIPS FOR RESEARCHING GLO NOTES

The General Land Office (GLO) Notes are indexed by Township, Range & Section "Line" number, this number is found in the "SecLn" column of the Land Survey Index

- The inside of the township are section lines 1-60
- The Land Survey Program's "line numbering" system was patterned after the way the township was originally surveyed
  - This began at the Southeast part of the township with Line Number 1 being between Sections 35 and 36
  - The surveyor continued north with Line Number 11 being between Sections 1 and 2
  - The surveyor then went back to the south boundary of the township with Line Number 12 being between Sections 34 and 35
  - This process continued until he reached the line between Sections 5 and 6, which is Line Number 60
- Only the south and east lines were surveyed with the east line being Line Number 61 and the south line being Line Number 62
- Field notes for U.S. Surveys will show up as Line Number 99
- Field Notes for state boundaries (if we have them) are indexed in the Land Survey Index and show up with the following in the "SecLn" column
  - Notes for the west boundary of Missouri are "70"
  - Notes for the North Boundary of Missouri are "71"
  - Notes for the boot heel are "72"
  - Notes for the South Boundary are "73"
  - Notes for the "Old Indian Boundary" of Missouri are "74"

#### ADDITIONAL TIPS

- The date in the Land Survey Index for the notes would be the date the surveyor surveyed the township.
- The root reference is by Volume and Page Number
- At the beginning of a volume there is an index of each township in that volume and what page the requested area is found

<https://apps.mda.mo.gov/molandsurveyindex/>  
<https://apps.mda.mo.gov/mocornermasterindex/>

### ❖ TIPS FOR RESEARCHING SUBDIVISIONS

The Subdivision search may be used when searching for any document which has a name. Examples are:

- The actual name of the Subdivision or Condominium
- A town name, city or village
- Some additional things which can be searched by name include *State Parks, Cemeteries, Rivers or Roads*
- If assistance is needed finding a requested document, try using a partial name. Examples of this are:
  - Typing the first few letters of a subdivision, instead of the entire name
  - An example using the name Northwood Subdivision. If nothing comes up typing the entire name; try typing "North" or "Nor". In some cases the subdivision may have been entered as two names such as "North Wood" (two words) vs. "Northwood" (one word)
- It is advantageous to select the county name from "county" dropdown box
- If a county is NOT entered, every subdivision in the state with that name will be included in search report
  - Look at the prefix (document location number) to rule out the ones not in requested county
- Keep in mind that subdivisions are indexed by last name. Examples are:
  - Searching for Edwin Murphy's Subdivision, it will be indexed as **Murphys Edwin Sub.** Type **Murphys** first instead of **Edwin**
  - Fred C. Goodwin Park Addition, type Goodwin for **Goodwin Fred C Park Add**, instead of starting with the name Fred
- After the subdivision index is pulled up, locate the Block & Lot columns to find desired plat

#### ADDITIONAL TIPS

- The date of the survey in the index is the date the surveyor signed it
- If the root reference is known, sort the search report by the "ROOT REF" to pinpoint which survey is needed
- The plat book and page number used is the one added by the Recorder when the plat was filed



### ❖ ST LOUIS CITY BLOCKS AND ROADS

- From the "HOME LSI SEARCH" page of the Land Survey Index
- Find the drop down for the "COUNTY" field
  - ◆ Choose "St Louis City" from the drop down
- Click "SEARCH"
- "ST LOUIS CITY SEARCH" page opens
  - ◆ Fill in information for a
    - "ROAD or ALLEY" or "CITY BLOCK"
    - Be sure to tab after entering criteria
- Click "SEARCH"

### ❖ RAILROAD TRACK MAPS

- From the "HOME LSI SEARCH" page of the LSI
  - ◆ Change "SORT BY" from "LEGAL" to "FILM LOC"
  - ◆ Enter search criteria
    - "TOWNSHIP", "RANGE" and "DIRECTION" or
    - "US SURVEY" or
    - use the "COUNTY" drop down to find county
  - ◆ Click "SEARCH"
  - ◆ Scroll in report to find "714" in the "LOC ORG" column
- Railroad names may also be entered in the LSI in the "SURVEYOR" column
- "ROOT REF" column may indicate the type of map, such as
  - ROW stands for Right of Way
  - SM stands for Station Map
  - TM stands for Track Map

### ❖ 750 DOCUMENTS

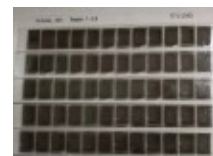
- From the "HOME LSI SEARCH" page of the LSI
  - ◆ Change "SORT BY" from "LEGAL" to "FILM LOC" or to "ROOT REF"
  - ◆ Enter search criteria
    - "TOWNSHIP", "RANGE" and "DIRECTION" or
    - "US SURVEY" or
    - use the "COUNTY" drop down to find county
    - Click "SEARCH"
- If sorted by "FILM LOC"
  - ◆ Scroll in report to find "750" in the "LOC ORG" column
  - ◆ Look in the "ROOT REF" column for the 5 digit number of the 750 document
- If sorted by "ROOT REF"
  - ◆ Look in the "ROOT REF" column for the 5 digit number of the 750 document

### ❖ BLUE LINKS

"DOCUMENT NAME" field in blue have a link to preview the document

### ❖ FINDING THE NEXT PAGE OF A MULTIPLE PAGE DOCUMENT

- The "DOCUMENT NAME" is given to the document using two different systems
  - The current numbering system uses the "DOCUMENT NAME" starting with a Y
    - The documents from this system include the complete document
  - The original numbering system uses the microfiche jacket number for the "DOCUMENT NAME"
    - These documents were scanned from the microfiche and each document includes all the pages from one row of microfiche not by the document
    - If the document is continued from the last page of the scanned microfiche row, find the next page by searching for the next row in the "DOCUMENT NAME" field



- Look at the "DOCUMENT NAME"
  - It will correspond to the microfiche jackets as seen above
  - Microfiche on 35mm will have 2 rows, A and B, 1 to 3 images, as seen on the left
    - Does the name end in an "A"?
      - ◆ If so, in the "DOCUMENT NAME" field on the LSI Search page, enter the document name with a "B" instead of the "A"
    - Does the name end in a "B"?
      - ◆ Look for the next microfiche jacket number
        - Change the document name up one number with an "A"
  - Microfiche on 16mm will have 5 rows, A, B, C, D, and E, 1 to 12 images, as seen on the right
    - Using the same technique as above, look for the next page of the document

*(continued on page 18)*

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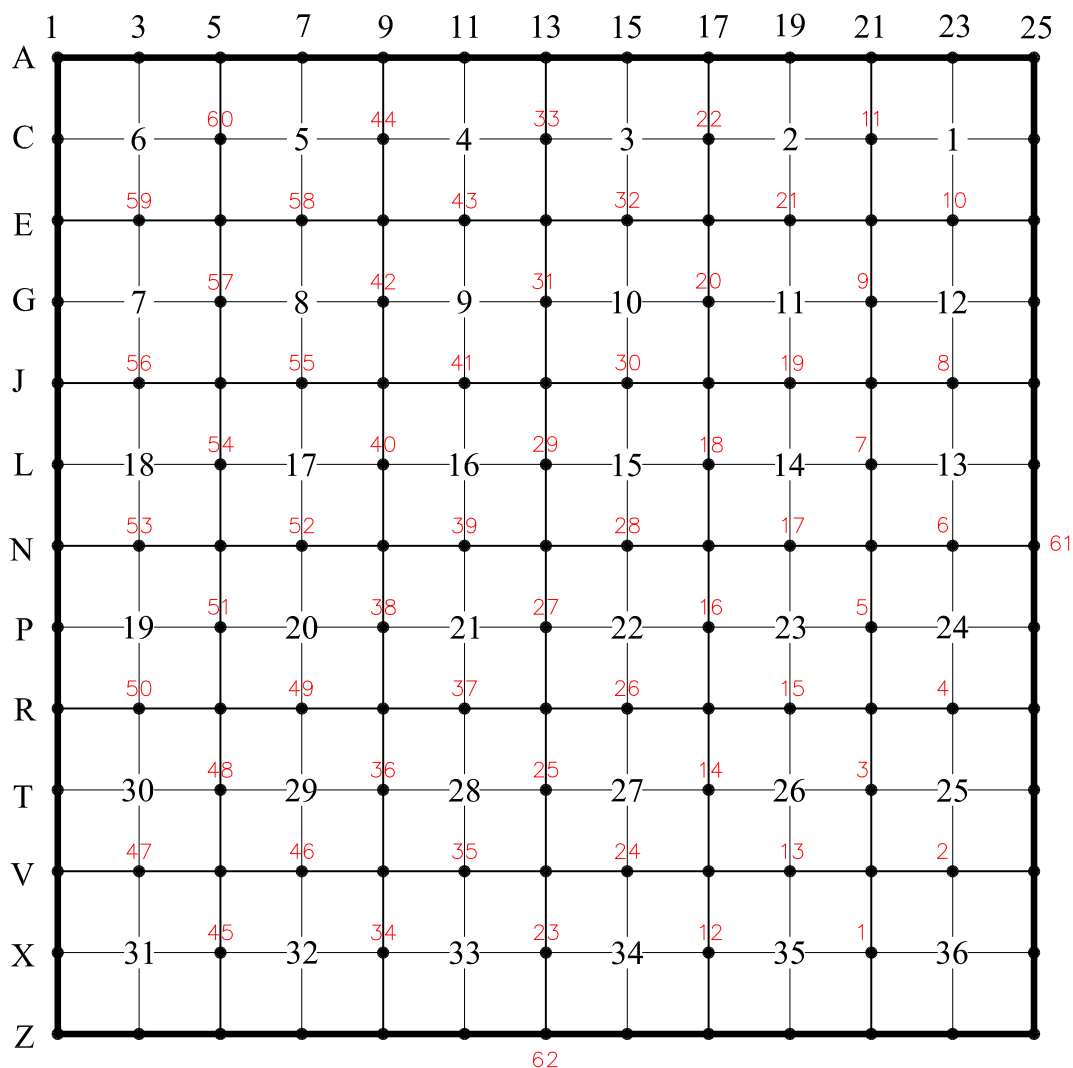
Missouri P.L.S.

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Ste. Genevieve, MO 63670

# *LAND SURVEY INDEX USER GUIDE*

## *(GLO FIELD NOTES AND CORNER INDEX)*



### *FRACTIONAL SECTION BREAKDOWN*

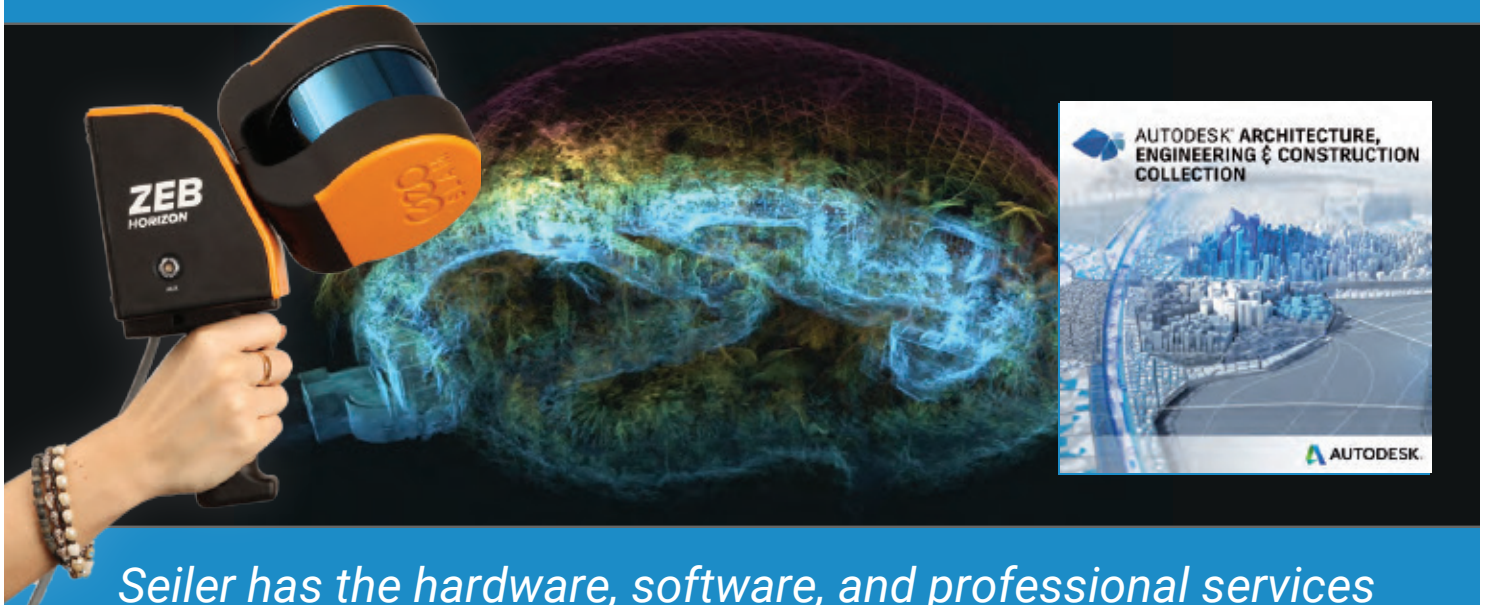
|     |     |     |
|-----|-----|-----|
| 400 | 001 | 100 |
| 004 |     | 002 |
| 300 | 003 | 200 |

|     |     |     |     |
|-----|-----|-----|-----|
| 440 | 410 | 140 | 110 |
| 430 | 420 | 130 | 120 |
| 340 | 310 | 240 | 210 |
| 330 | 320 | 230 | 220 |





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# NSPS Celebrating America 250 with Commemorative Medallion

*Originally published in Surveyor Says! The NSPS Bulletin, June 2026 Edition*

Celebrate America's 250th anniversary and the surveying profession's role in shaping the nation with this exclusive 3¼" commemorative medallion. Created in partnership with the National Society of Professional Surveyors (NSPS), this medallion features the official USA 250th design and serves as a lasting tribute to the surveyors whose work helped define the boundaries, infrastructure, and growth of the United States.

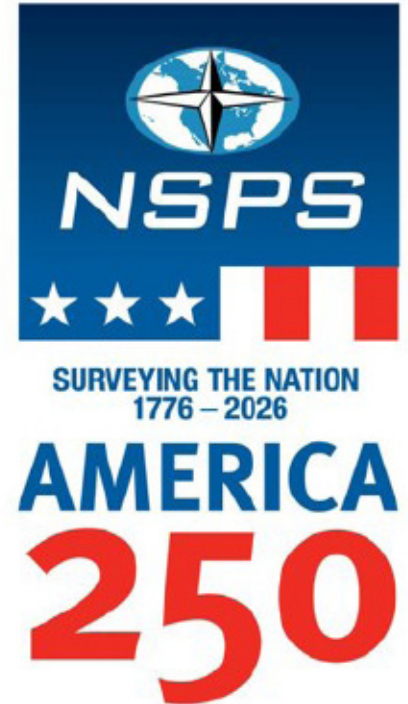
This medallion is a replica of the larger commemorative monument that will be unveiled during the NSPS USA 250th celebration at Mount Rushmore in October 2026. Whether displayed in an office, presented as a recognition award, or added to a personal collection, it is a meaningful keepsake honoring both the nation's history and the surveying profession's enduring legacy.

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# Nominees for 2026-2027 Officers



## President – Chris Ferguson

Chris Ferguson is the owner of Heartland Surveyors, LC located in Waverly, Missouri concentrating on large rural boundaries and small-town surveys. He recently retired from the U.S. Forest Service after nearly 20 years of surveying the Ozarks.

Chris began his surveying career in the U.S. Marine Corps transferring from the infantry into an artillery battalion and eventually

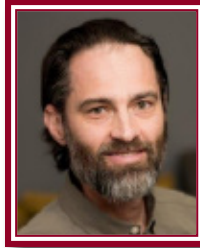
became the senior Survey/Meteorological and Radar Officer for the 14<sup>th</sup> Marine Regiment concluding 23 years of active and reserve service. Concurrently, he worked his way from rodman to manager while employed by several Metro St. Louis engineering/surveying firms. That led to running his own company for over a decade highlighted by several capstone projects such as Busch Stadium, the Gateway Arch National Park grounds, and STL-Lambert International Airport expansion.

Along with Missouri registration, Chris holds licensure in other Midwestern states, remaining active in Arkansas and Kansas and is also a Certified Federal Surveyor (CFedS) and a Certified Floodplain Manager (CFM®).

In addition, he is also a co-Editor of the *Missouri Surveyor*. Editor Emeritus Don Martin told Chris awhile back that he might be “bad at retiring”. Likely so...although he does find occasion to enjoy time with his lovely wife Beth, their family and grandchildren. As the goal now is to be maybe “semi-retired” someday, he is nonetheless happy to serve as President and looks forward to the opportunity.

## President-Elect – Scott Faenger

Scott Faenger is the Missouri State Land Surveyor and the Director of the Department of Agriculture’s Land Survey Program located in Rolla, Missouri. He was introduced to the profession in the early 1990’s when he answered a laborer want ad in Houston, Texas and spent that summer locating pipeline for a surveying / engineering firm. He went on to become a party chief with that company. He has also worked for land surveying firms in Arkansas and Missouri and has been with the Land Survey Program of Missouri for the past 20 years. Scott started with the Land Survey Program in 2003, as an instrument man with the Missouri’s State Parks survey crew. In 2005, he transferred into the Land Survey Program’s Cadastral Section and has been a part of numerous township wide, county line, and state line projects that involve restoring or reestablishing corners of the United States Public Land Survey System. In February 2022, Scott became Missouri’s 5th State Land Surveyor and the Director of the Land Survey Program. The Land Survey Program is responsible for preserving and protecting the United States Public Land Survey corners and state and county boundary markers, providing the framework for all geodetic positioning activities in the state; collecting, preserving, and providing copies of land survey records; and disseminating regulations designed to assist in uniform and professional surveying methods and standards for the State of Missouri. Scott is currently a member of the Missouri Society of Professional Surveyor’s Board of Directors and serves on the history committee and the public relations/sales committee. He resides in Rolla with his wife, Patty. Scott is currently serving as Secretary-Treasurer for MSPS and also serves on the history committee and the public relations/sales committee.



## Vice President – Philip Grout

Philip is the Survey Service Leader for Civil Design, Inc. in St. Louis, where he is responsible for surveying operations across all locations. He earned his BS in Civil Engineering Technology with an emphasis in Surveying from Murray State University in 2003. After graduating, Philip worked for surveying consultants in Kentucky, Kansas, and Arizona before setting roots in Missouri,

earning licensure here in 2010. He has since become licensed in Indiana, Illinois, and Kentucky. His experience includes residential, commercial, industrial and municipal surveying for a wide variety of clients including MoDOT, MoDNR, and MoDC, as well as many municipalities, county governments, sewer districts, and private companies. In his position as a leader and mentor, Philip takes pride in building the next generation of surveyors. He is dedicated to raising awareness of the profession, personally volunteering as a Surveying merit badge counselor for Scouts BSA and visiting local schools through the Project Lead The Way program. He has served as president of, and been a long-time director of, the St. Louis Chapter of MSPS and is a co-chair of the standards committee. In his free time, Philip enjoys cycling, playing ice hockey, and canoeing and backpacking rivers and trails in Missouri and across the country with his wife, Catherine, who indulges his hobby of finding benchmarks during their travels. Philip appreciates this opportunity to serve on the MSPS Board of Directors to help build the reputation and future of our profession.

## Secretary-Treasurer – Austin DeSain

B. Austin DeSain, PLS, brings 3 decades of surveying experience to the field. Austin is the Survey Principal of the St. Louis office for Civil & Environmental Consultants, Inc. Prior to that, he was the Vice President at The Clayton Engineering Company, Inc., where he worked for twenty years. However, his career in surveying started long ago at the family business, DeSain Surveying. He enjoys researching and writing about all aspects of surveying related to history, technology, and changing regulations as one of the Co-Editors for the Missouri Surveyor Newsletter. As one of the directors for the Missouri Society of Professional Surveyors, and as the Secretary-Treasurer of the MSPS STL, he plays an active role in supporting continuing education opportunities and furthering the advancement of the surveying profession for our state and the St. Louis region.



## Secretary-Treasurer – Kellan Gregory

Kellan Gregory, a surveyor from the Kansas City area, currently in my 24th year of practice. I earned my Missouri license in 2011 and have really appreciated the opportunities that this career has afforded me. Recently, I have had the privilege of serving as the Young Surveyors Committee chairman, enjoying the chance to meet, get to know, and serve the young surveyors of the Society. It is important to me to try to give

back to the Society in this way, as I directly benefited from both the Society as a whole and the KC Metro chapter when I was in that early stage of my career. I live in Cass County with my family and enjoy hunting, fishing, and trapping in my free time.

# Nominees for 2026-2027 Board of Directors



## Francis Duncan

Francis Duncan is a Professional Land Surveyor (PLS) in the state of Missouri living and working primarily in the northwest quadrant of the state.

She joined the land surveying profession in 2017 as an assistant survey technician and became licensed in early 2025. She is currently serving as the District Land Survey Manager for the Northwest District of the Missouri Department of Transportation (MODOT).

Francis has attended Linn State Technical College and Oklahoma State University for the required classwork to become a PLS in the State of Missouri. She also currently works as a teaching assistant for Midwest Geospatial Academy (MGA).

Her involvement with MSPS has mainly been focused on the Young Surveyor's Committee (YSC). Her experience with the YSC has been to assist Kellan Gregory in growing the young surveyor's network in Missouri, via outreach and training opportunities. This has culminated with achieving a concurrent technician's day at the Spring MSPS meetings, as well as the revitalization of the Young Surveyor's Rodeo at the 2025 fall MSPS conference.

Francis has been very fortunate to have had the opportunity to speak on Missouri Standards at both Kansas and Missouri conferences, as well as being invited to speak about her experience becoming licensed in Missouri at the technician days.

Francis enjoys snowboarding, racing, and camping with her husband and two dogs in her spare time.

## Jeffrey Means

Jeffrey P. Means is a licensed Professional Land Surveyor (PLS) in Missouri and Kansas with 31 years of surveying experience throughout Missouri and the Kansas City region. Jeff began his surveying career in 1995 in St. Joseph, Missouri, and earned his Associate of Science degree in Construction Engineering from Missouri Western State College in 1996. After earning his Missouri PLS license in 2000, Jeff relocated to the Kansas City area, where he continued to build his career in land surveying and project management.

Jeff currently serves as a Project Manager with McClure in North Kansas City, where he oversees surveying projects and supports clients through the planning, design, and development process. Throughout his career, Jeff has demonstrated a strong commitment to the surveying profession through both professional leadership and service.

From September 2016 through December 2018, Jeff served as President of the Kansas City Chapter of the Kansas Society of Land Surveyors (KSLs) and the Missouri Society of Professional Surveyors (MSPS). He continues to support the organization through ongoing service, including coordinating communications, assisting with meeting planning, maintaining the chapter website, and managing administrative responsibilities.

Jeff has also been actively involved with MSPS through numerous volunteer efforts. His service includes participation on the Golf Committee, Legislative Committee efforts involving outreach to legislators at the State Capitol, PAC Committee fundraising activities, and the Trig-Star Committee, where he has helped administer Trig-Star tests for local high school students. One of the Trig-Star testing sites Jeff administered produced the Missouri State Trig-Star winner during the 2017–2018 competition.

Jeff has been married to Merri Beth for 31 years and has 2 sons, Jacob 30, and Gabriel 26. He enjoys golfing, fishing, and traveling with his wife.



## Jason Beasley

Jason Beasley is a Professional Land Surveyor who is the project surveyor for the Cadastral Section of the Missouri Department of Agriculture's State Land Survey Program in Rolla, Mo. He attended the University of Missouri, Columbia and began his surveying career as a technician with the Missouri Department of Natural Resources, State Parks Land Survey Crew in 2006. In 2015, Jason

transferred to the Missouri Department of Agriculture, State Land Survey Program, working in the Cadastral and Geodetic Sections. In 2021, Jason became licensed and has been conducting Cadastral surveys since. He has been an active member of the Missouri Society of Professional Surveyors since 2015. Jason currently resides in Licking, MO, with his wife and two children. In his spare time he enjoys spending time outdoors with his family, hunting and playing golf.

## Virginia Humiston

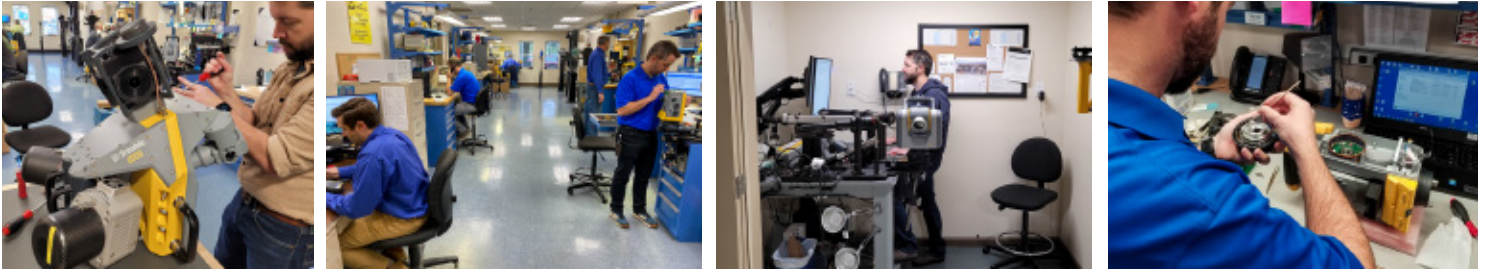
Virginia Humiston is a licensed Professional Land Surveyor in Missouri and Illinois with over 25 years of experience, mostly in the St. Louis region, and currently works as a Project Manager at Bax Engineering in St. Charles, Missouri. She currently lives in St. Charles, but she grew up in rural Minnesota, where her father worked on the field crew for the local County Surveyor.

After High School, she attended North Dakota State University with a major in Civil Engineering, and later transferred to Penn State University, where she earned her Bachelor of Science Degree in Land Surveying and became a member Lambda Sigma, a Land Surveying Honor Society. She spent three summers of her educational years as an intern, the first two of those summers with the Minnesota Department of Natural Resources, where she was first exposed to actual field surveying practices in some of the beautiful parks and wildlife areas of her home state, and sparked her interest in becoming a Land Surveyor instead of an Engineer.

She relocated to St. Louis in January of 2002 after her graduation from Penn State, sharing an apartment with a former roommate from the university, and she has lived and worked in the St. Louis Area ever since. She became a licensed Professional Land Surveyor in Missouri in 2006 and has worked for several St. Louis Area firms and with the St. Louis County Department of Transportation, building up a broad base of skills and knowledge within the Land Surveying Profession.

Virginia's interest in serving on the Board comes from her love of being a Land Surveyor and a desire to find ways to encourage young people to join the Profession; not only to help sustain it, but to help it grow and evolve with modern times. She is very supportive of the new, local education programs and looks forward to being able to serve the Profession and those who practice it.





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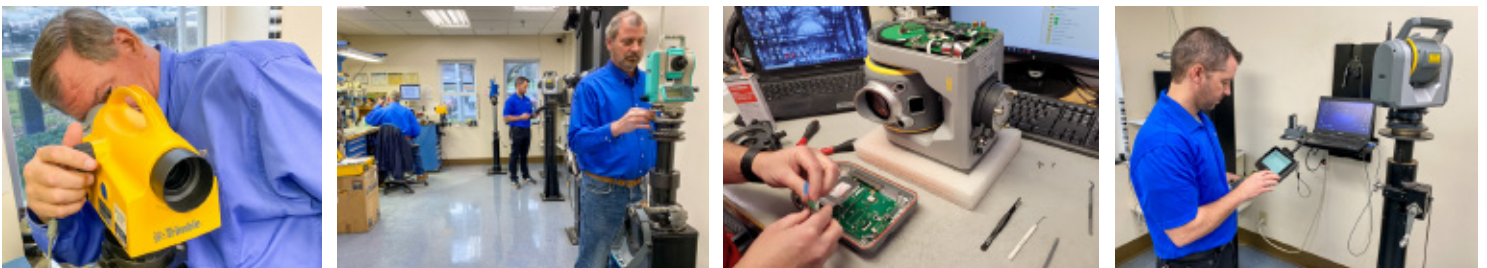
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PART II: UPDATING THE STATE PLANE COORDINATE SYSTEM

*Todd Horton, PE, PLS, Meridian Geospatial Consulting, LLC*

### **TECHNICIAN TRAINING COURSE**

# Member Spotlight

**David G. Krehbiel, PLS 1223, PE 11594**

*Interviewed by Chris Ferguson*

This installment features one of the most prominent members of our profession. Among many other accomplishments, Dave was instrumental in securing much of the professional standing and status we Missouri Land Surveyors enjoy today. What follows are some personal recollections of the 1996 Robert E. Myers Service Award recipient and our 1978 MSPS (formerly MARLS) President.

Originally hailing from a small Mennonite community, Dave was drafted into the Army after graduating from Mizzou in 1961 where he was assigned to Fort Leonard Wood for duty. Working with the Post engineers, he set the control grid for the installation along with laying out the pistol range and preparing design surveys for the General Leonard Wood Community Hospital.

Settling into private practice in Camden County, he launched Krehbiel Surveying in 1965 later adding engineering to his offerings to the public. For a while, Dave partnered with Gerry Harms, but one constant companion in the business was his wife Dana, joined later by their son Darren (also a PE/PLS).

Not long after hanging out his shingle, Dave was recognized for his organizational and leadership skills. He was soon selected for appointment to the PE Registration Board. In those days, the forerunner to today's APEPLSPLA Board did not have a dedicated full-time Land Surveyor member; that duty fell to an engineer who also was a Registered Land Surveyor (RLS).



*(MSPS Photo)*



*Dave and the late Jerry Day at a Board function (Member Photo)*

Dave was determined to change that. In his words, he got his “nose under the tent” along with the efforts of Bob Myers and Harold Schulte, Dave was appointed the first Chairman of the RLS Division of the Board, giving surveyors long-overdue parity with architects and engineers in licensure matters. Nearly simultaneously, Dave worked with Stan Elmore to publish the first edition of the newsletter you are now reading!

Meanwhile, he ventured beyond Missouri's borders to become a Board Member of the National Council of Examiners for Engineering and Surveying (NCEES) and subsequently chaired the first committee creating national standards for the surveyors' examinations (now known as the FS and PS exams). Were all that enough, Dave served as a County Commissioner (Camden, 1<sup>st</sup> Dist.) and labored in the field of survey education establishing familiar events enduring to this day such as Workshops and the Exam Review Courses. He even taught survey basics

as a continuing education credit class for realtors after becoming a Realtor and Broker himself.



*Dave and Family 1960's (Member Photo)*



*Dave and Dana at NCEES Banquet  
(Member Photo)*



*Dave with NCEES Exam Committee (seated second from right  
(Member Photo)*

An avid collector of antique survey instruments, Dave proudly owns a Burt's Solar Compass and Chesterman chains (crafted in Sheffield England). Over the years he donated several Gunter's chains and blocked trees (with GLO scribing) to grateful recipients.

Preferring now to enjoy retirement, Dave has left the business in the capable hands of his son Darren (nearing retirement himself!) and has more time for leisure pursuits with Dana. Interestingly, Dana's great-great grandfather John Neely Bryan was the founder of Dallas Texas.

Dave has enjoyed a full life and a satisfying career, but what led to this article, was the author was contacted by Mr. Krehbiel about the "Tick Issue" (last March's Newsletter). Evidence suggests Dave may well be "Patient Zero" for the Alpha-Gal sugar molecule.

Returning from a late summer Rotary Club trip to Australia in 1969, Dave was attending a steak dinner later that fall. Almost immediately he suffered hives, swelling and breathing problems. A dose of over-the-counter medicine later that evening brought some relief. Doctors concluded that it was maybe brought on by aspirin purchased abroad or perhaps tainted food. However, some months later at another Rotary function after a roast beef lunch, a similar reaction occurred, followed by yet another at a McDonalds in Hannibal after eating a hamburger. He concluded then that he was allergic to beef and had none since over 56 years. But that was not the end of the suffering – he also had a similar reaction vacationing in the Caymans from a gelatin appetizer. All the above are symptomatic of Alpha Gal, and Australia has a well-documented history of the disease, but it is rather astonishing to think it may have been around for nearly six decades. So, Dave reached out to the editors to let us all be even more aware of the hazards of tickborne illnesses.

The author felt privileged to spend an afternoon with one of the pioneers who blazed the trail today's PLS's follow. We should all be grateful for the efforts Dave and others gave to raise our profession to what it is today. 🇺🇸

# The Highest Elevation in Missouri

The Missouri Association of Registered Land Surveyors (MARLS, before MSPS) measured and set a pink granite tablet in March 23, 1991, at elevation 1,772.68 feet for the highest elevation in Missouri near the base of a large boulder. I suspect the actual high point is on top of the boulder though. The pink granite comes from this part of the state, found at what is now Elephant Rock State Park and other quarries around the area. The tablet is a short 1,200 ft walk from the Tom Sauk Mountain State Park parking lot, near the trailheads to see waterfalls and hike through the woods. There is an NGS datasheet for a 1938 Triangulation Station Disk in the woods about 650 feet southwest of this tablet named Wildcat (PID HC1044), with descriptions from 1992 and 2012 that the station has been lost & was not found.

Pictures and text by B. Austin DeSain, PLS. 





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## The Highest Elevation in Missouri *(continued)*



# ***The Genesis of Missouri from Wilderness Outpost to Statehood, by William E. Foley***

## **Introduction and Selection for Missouri Surveyor**

*by B. Austin DeSain, PLS*

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With the completion of Fort Osage in 1808, the signing of the Treaty of St. Louis in 1809, the Osage returned into the American fold. These dates were crucial though, in the discussion about the years leading up to the War of 1812 in Missouri. The war was in large, a British-American series of military clashes. However, on the frontier, it was fought as guerilla-style battles between British-allied Indigenous tribes and the settlers. The Sauk, Fox, and Potawatomi were resisting American westward expansion and fought many battles with the settlers in the preceding years to the war. Once the British had alliance, their attacks and battles became larger and bloodier for the frontier settlers.

For Missourians in many areas, life in forts was defined by frequent, unpredictable Native American raids. Settlers in places like St. Charles, Lincoln, and Warren counties pooled their resources to build stockades and settler forts, where they sheltered while tending to their nearby crops by day. General William Clark often remarked that the territory's state of militia readiness was in deplorable condition, with a shortage of weapons and militiamen. Of the 2,433 militiamen, he estimated that half were unarmed, confiding to Jefferson that if an Indian war were to erupt, the territory would be in a defenseless state.

With the lead mine production increase in the Ste. Genevieve, Frederick Bates authorized several government-owned lead mine operations for three-year periods, in accordance with new laws. The claimants were to establish furnaces and storehouses on the land to process the shares, and to ensure that the government received full value of the claim. From the president and Bates' planning for this law, they recommended that the claims be made for as short of time as possible. The system was a total failure but remained in place until 1829. The areas were already full of Spanish concessions that encompassed the valuable claim areas, and unauthorized intruders who had been mining for years already. The tracts were constantly disputed. "A very unpleasant place of residence, as the continued broils and quarrels among the workmen, as well as the proprietors, keep up a constant scene of warfare", Christian Schultz observed. Henry Breckenridge wrote of the motley assortment of speculators, gamblers, fortune hunters, and adventurers being "some of the rudest and most savage of the uncivilized portion of civilized society", that kept the territory in a perpetual state of anarchy.

The legislation for the territory that was coming from Washington did not make sense. The territory had a severe shortage of weapons, and the Indian tribes opposed to westward expansion were starting to align with the British for anti-American preparations. Governor Lewis saw firsthand the condition of the territory, and Clark was also very active in the progression of the state into a more stable version. However, the disconnect was over the need for supplies, settlers and stability, in the way that the local situation was viewed by the northeast. Governor Lewis did make substantial efforts to improve the situation in Missouri in the years following his appointment in 1806, but there was already so much disarray.

Interesting to consider, but I would say that Lewis' best years might have been during the Corps of Discovery expedition (1804-1806), and probably his most difficult were in the subsequent years as the Governor of the Upper Louisiana Territory, leading up to his death at the inn, along the Natchez Trace in 1809, at 35.

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# ***The Genesis of Missouri from Wilderness Outpost to Statehood (continued)***

## **Chapter 12. An Uneasy Interlude**

Although he had been appointed governor on 3 March 1807, Meriwether Lewis did not arrive in Louisiana to take charge of the government until 8 March 1808. The governor's long-awaited appearance brought welcome relief to the overloaded territorial secretary, but it also temporarily resurrected old political rivalries as the principal protagonists vied for the new executive's favor. Unlike Governor Wilkinson, however, Lewis displayed little interest in local politics, preferring instead to focus his attention on military and Indian matters. The continental pathfinder directed his gaze westward, not eastward. As Richard Dillon notes, for Meriwether Lewis the things that mattered most were "exploration, science, trade, Indians, furs." In those subjects he excelled. 1

When he finally reached St. Louis, Governor Lewis found Upper Louisiana's Indian affairs in a state of disarray. The Sacs were on a rampage. They had murdered several Ioway and Sioux families, stolen horses and slaughtered livestock belonging to frontier settlers, and repeatedly ignored demands to deliver to U.S. authorities the culprit responsible for killing the French trader at the mouth of the Missouri. The situation with the Osages was only slightly better, as members of the Arkansas faction continued to defy the American government's efforts, in cooperation with the Chouteau brothers, to reunite the divided Indian nation under White Hair's (Pawhuska's) control. Even a few dissidents within the ranks of the normally pro-American Missouri Osages had embarked on a campaign of stealing horses, killing cattle, and harassing isolated territorial settlers. The growing disaffection of the once-dominant Osages was understandable, as they watched their territories being invaded by land-hungry white settlers and well-armed eastern tribes, notably the Cherokees. Some of the Osage renegades challenged White Hair's authority and joined with representatives of the Kansa, Republican Pawnee, and Pawnee tribes in a meeting with Spanish agents. And if all that were not enough, the governor learned that an Ioway party had murdered two traders traveling by canoe down the Missouri in the vicinity of the Grand River. Governor Lewis and General Clark, who had returned to St. Louis in June 1808 with his new bride, both blamed British and Spanish agents for inciting the Indians. 2



*Sac and Fox Indians near St. Louis. Engraving by Karl Bodmer. Courtesy State Historical Society of Missouri.*

Without hesitation, the governor initiated actions to force the errant tribes to come to terms with the United States. He ordered all trade with the Osages halted and refused to issue any new licenses for trading with other tribes along the lower Missouri pending the establishment of permanent U.S. trading posts in the region. At the same time, he declared that the Osages no longer enjoyed the American government's protection and invited tribes friendly to the United States to war against them and drive them from the territory. The governor also offered a \$600 reward for the apprehension and delivery of the Ioway murderers and sent a party of twenty-seven infantrymen to the Sac villages to force that tribe to surrender

the French trader's alleged assassin. Anticipating that his superiors in the national capital might consider such measures unnecessarily harsh, Lewis wrote to Secretary of War Dearborn, suggesting that in the federal government's concern for the welfare of the Indians, it should not lose sight of the precarious position of the white settlers along the frontier. 3

The governor predicated his policies upon the assumption that the Indians' love of merchandise and their fear of punishment afforded the most effective means for controlling them. Most local residents heartily endorsed his strong stand in handling Indian problems, but officials of the Jefferson administration remained more reserved in their assessment of the situation. While approving Lewis's general course of action, the president advised him to avoid, if at all possible, any military coercion of the Indians. Jefferson held that "commerce is the great engine by which we are to coerce them, & not war." 4

Operating under this philosophy, federal officials hoped to regain the Indians' friendship by establishing more government trading factories that offered good merchandise at reasonable prices. Because the existing factory at Cantonment Belle Fontaine had not been readily accessible to the region's numerous tribes, the War Department decided to construct a new factory near the Osage villages, and another on the upper Mississippi at the mouth of the Des Moines River. Secretary Dearborn also instructed the troop commander at Belle Fontaine to establish military forts adjacent to each of the new trading stations, manned by enough soldiers to protect them. 5

By late summer the necessary arrangements had been completed. When Governor Lewis and General Clark suggested that the proposed site for the factory on the Osage River was inaccessible, Secretary Dearborn agreed to shift its location to a point on the Missouri River approximately three hundred miles upstream from the Mississippi. In early August 1808, a keelboat expedition under the command of Capt. Eli Clemson set out from Cantonment Belle Fontaine carrying men and supplies for the new Missouri River installation. A short time later, Clark traveled overland with Capt. Nathan Boone's company of mounted dragoons from the St. Charles district to join Clemson's force at the Missouri River site. Clark had selected a spot on a high bluff overlooking the winding Missouri near the present town of Sibley in Jackson County. The location's unobstructed view of the surrounding countryside had been a decisive factor in its choice. When he arrived on the scene, Clark directed construction of an upright log palisade and four blockhouses, a connected two-cabin factory store with a cellar, barracks for the soldiers, and assorted other buildings. As the log structures began to take shape, Clark dispatched Captain Boone and the mixed-blood interpreter Paul Loise to the Osage towns to inform tribal members of his arrival and invite them to take up residence near the new fort. Territorial officials had decided to follow a carrot-and-stick strategy in their dealings with the out-of-favor Osages. While threatening them with war, they simultaneously used the new U.S. trading factory as an inducement to lure them back into the American fold. The Osages accepted Clark's invitation to confer at the site of the new fort, known to them as Fire Prairie. 7

During the ensuing negotiations, the Osages agreed to a treaty in which they relinquished to the United States an immense tract of land between the Missouri and Arkansas rivers within the Louisiana Territory in return for promises of trade and protection. Clark, whom the Indians referred to as the Red Head, won them over with his assurances that the transfer of the tract to the U.S. government would make the area more secure from eastern tribes seeking to occupy it. Clark returned to St. Louis with the agreement, but the ink on the document was barely dry when an Osage delegation came to the territorial capital expressing its displeasure with the treaty's contents. They maintained that White Hair and the other signers had lacked authority to bind the tribe because they had failed to secure consent from the tribal council. Their objections irritated Clark, who insisted that he and the interpreters had carefully reviewed every provision with the Osage leaders before they signed the treaty. Lewis believed that the treaty had been accurately represented to the tribesmen, but he consented to its renegotiation to forestall future problems. 8



*Meriwether Lewis.  
Portrait by C. B. J. F. de  
Saint-Mémin. Courtesy  
State Historical Society  
of Missouri.*

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## The Genesis of Missouri from Wilderness Outpost to Statehood *(continued)*

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Lewis personally drew up a new treaty designed to eliminate Indian objections to the previous agreement. In drafting the document, he consulted Pierre Chouteau, but he rejected the Osage agent's request for an article confirming Chouteau's Spanish title to thirty thousand arpents of land in the ceded area. When he completed the revised treaty, Lewis directed Chouteau to secure Osage approval for it. The Indian agent presented the new agreement to tribal leaders, and at his urging they accepted its provisions on 10 November 1808. In return for the title to the ceded lands, the American government agreed to establish a permanent trading factory to supply the tribe with merchandise, to erect a blacksmith shop and mill for use by the Indians, to grant annual \$1,500 stipends to the tribe, and to restore the Osages to the protection of the United States. 9

*Pawhuska (WhiteHair),  
chief of the Bog Osages.  
Portrait by C. B. J. F.  
de Saint-Mémin, 1806.  
Courtesy The New York  
Historical Society.*



The Osage call for the inclusion of a provision in the revised treaty validating Chouteau's title to the lands they had given him in 1792 caused Clark to conclude that it was the French trader who had persuaded the Indians to reject the original agreement. George Sibley, the U.S. factor at Fort Osage, also castigated Chouteau's handling of the negotiations, but in fact, although Chouteau undoubtedly encouraged the Indians to press for the proviso concerning his lands, the Indians based their objections to the treaty on more than a concern for Chouteau's private interests. Once they understood the magnitude of the concessions they were making, it was little wonder that they registered their objections to the original treaty. At their insistence, the provision for the \$1,500 annuity was inserted in the revised document, along with additional articles concerning hunting grounds, the surrender and punishment of in making fashionable felt hats. 15

Unable to secure financial support for the undertaking in St. Louis, Lisa entered a partnership with two prominent Kaskaskia merchants, Pierre Menard and William Morrison, to sponsor the first planned American trading and trapping expedition to the upper Missouri. With many recruits from Lewis and Clark's recently returned crew, Lisa organized and directed a force of more than fifty men that headed up the Missouri in the spring of 1807. After enduring the hardships and privations of living in the wilderness for over a year, Lisa returned to St. Louis in the summer of 1808 with enough beaver skins to show a modest return on the original investment. Based upon what he had seen, Lisa reported that tremendous profits awaited those willing to take the necessary risks. In fact, many of his men had chosen to remain in the mountains for the upcoming fall hunt. 16

Lisa's successful venture created a dilemma for his St. Louis competitors, who now realized that they either must enter the race to capture the rich trade on the upper Missouri or run the risk of losing their dominant position in the fur business. Already numerous American merchants, including John Jacob Astor, were making plans to enter the trans-Mississippi trade, and at Michilimackinac a coalition of traders had recently affiliated themselves with the powerful North West Company. Moreover, the St. Louis group, headed by the Chouteaus, faced the bleak prospect of a further reduction in the present revenues as the unwelcome competition from the two newly constructed government trading factories threatened their long-time dominance in the lower Missouri trade. After carefully considering the various alternatives, the principal traders decided to join Lisa and his partners in the formation of the St. Louis Missouri Fur Company. With the additional capital that the new organization could provide, the founders hoped to fully exploit the rich trade in the upper Missouri valley. Under the Articles of Association and Co-Partnership drafted in St. Louis during the winter of 1808-1809, each partner agreed to go on the first expedition or provide an acceptable substitute. Some of the most prominent members of the St. Louis business community joined Lisa, Menard, and Morrison in launching the new company. They included Pierre

Chouteau, Sr.; his son Auguste Pierre; Reuben Lewis, the governor's brother; William Clark; Benjamin Wilkinson, the former governor's nephew; and Andrew Henry, a Ste. Genevieve entrepreneur. The group designated Clark to act as the firm's agent in St. Louis. 17

Even before the final Articles of Agreement had been approved, the company had signed a contract with Governor Lewis to escort Shahaka, the Mandan chief, to his home. In return for a payment of \$7,000, the company agreed to supply a force of 120 men to guarantee the Indian leader's safe return. If the trade did not go as well as the members anticipated, they still could count on the substantial government payment. As an added incentive, the governor promised not to grant any licenses for trading in the area above the Platte River until after the company's scheduled departure date, thereby assuring the Missouri Company's traders a head start. Altogether, the company dispatched approximately 350 men up the river in May and June 1809 with the knowledge that they enjoyed the governor's confidence. In point of fact, their benefactor Lewis was probably a secret partner in the venture. 18

In view of the expedition's quasi-commercial nature, the administration took a dim view of the governor's actions, especially his decision to pay the company for its assistance. Secretary of War William Eustis, a penny-pinching bureaucrat, agreed to honor the sum stipulated in the contract, but he declined to approve an additional \$500 payment authorized by Governor Lewis for purchasing gifts for the Indians. In refusing to pay the amount in question, Eustis censured Lewis for having failed to secure authorization in advance for this costly project.<sup>19</sup> The federal government required local officials to seek prior approval for all large expenditures so that it could closely regulate territorial expenses, and economy-minded federal officials tended to be conservative in the amounts they allowed local officers to spend. In 1809, Eustis pared the Indian agency's proposed budget after chiding Clark that his recommended expenditures for Indian affairs in the Louisiana Territory amounted to four times the sum allotted for civil administration. 20

Both Lewis and Clark considered these latest reprimands unjustified. Lewis previously had argued that in view of their distance from the seat of government, territorial officials needed broader discretion in handling local problems. Noting that it took at least two months for him to receive a reply to his most urgent inquiries, he pointed out that unexpected situations sometimes required him to act without consulting his superiors in the executive branch. 21

The absence of regular channels of communication in frontier communities posed a perennial problem for territorial administrators, and more than any of his predecessors Governor Lewis sought to alleviate this deficiency in Louisiana. Irregular and undependable postal service was a constant source of irritation to territorial residents and officials. Post riders, under contract, carried the mails on horseback. Working under difficult and sometimes dangerous conditions, these frontier couriers often failed to make their scheduled rounds. The territory was supposed to receive mail once a week from the East, but to the disgust of local residents, several weeks often elapsed between deliveries. Despite Governor Lewis's attempts to improve the system, postal service in the territory remained erratic. 22

The governor also took the lead in securing a territorial newspaper. Recognizing the need for a printer who could publish Louisiana's newly enacted statutes, Lewis encouraged Joseph Charless, a hot-headed Irishman, to come to St. Louis to establish a newspaper. Thanks in part to the financial assistance provided by Lewis, the initial issue of the Missouri Gazette, the first newspaper published west of the Mississippi River, went on sale in St. Louis on 12 July 1808. 23

A growing impatience among local residents with the American government's seeming inability to solve perennial frontier problems—unsettled land claims, disputed mining rights, inadequate defenses, poor postal service, and deficient transportation systems, to name a few—led to increased criticism of the existing territorial government and spawned demands for advancement to second-class territorial status. The dual attractions of greater self-government and new opportunities for local public office brought added support to the movement. As early as February 1808, Frederick Bates referred to local desires for a second-grade territorial government, but the campaign to advance Louisiana's territorial status appears not to have begun in earnest until 1809. The editor of the Missouri Gazette reported in January that he intended to publish in an upcoming issue a letter he had received proposing that Louisianans apply to the general government for advancement to a second-grade territory, but he cautioned his readers to consider carefully the

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# ***The Genesis of Missouri from Wilderness Outpost to Statehood (continued)***

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consequences of such a step. The editor suggested that the change would increase taxes and extend the governor's powers in the territory while lessening his responsibility to the national government. Charless' arguments provided the basis for much of the later campaign against the proposed shift. 24

Following Charless's opening blast, the Gazette printed a copy of a petition to Congress seeking the change in territorial status. Basing their demands upon the 1803 Treaty of Cession and the U.S. Constitution, the petitioners claimed that Louisiana's current system of government excluded them from the full enjoyment of the rights and privileges guaranteed to all American citizens. Furthermore, the petitioners reminded Congress that the Territory of Orleans already had been granted the territorial status they now sought for Upper Louisiana. 25

The editor's opposition to the proposed change set off a major debate in the Gazette's columns over the assets and liabilities of second-class territorial status. "A Subscriber" accused Charless of resisting modification in Louisiana's government because, as territorial printer, he feared loss of executive patronage. After questioning the editor's motives, the author then enumerated the advantages that the higher grade of government would provide. Appealing to the growing demands for representative government, "A Subscriber" reasoned that local residents were best equipped to solve their own problems and that this measure would pave the way for increased self-government. 26

Charless refused to budge from his original position, insisting that the changes would not be worth the greatly increased costs. Using arguments similar to those that had been advanced by opponents of second-class status in other territories, he contended that the increased costs of the new government would discourage immigration to the territory. Like Charless, the chief antagonists of the second-grade government continually stressed that such a change would necessitate a large increase in local taxes. Whereas the territorial legislators currently received their salaries from the federal treasury, the costs of the new legislature would have to be borne by the local taxpayers, particularly the property holders. 27

While the debate continued to rage, copies of the petition printed in the Gazette had been circulated throughout the territory for signatures and were forwarded to Congress in January 1810. Since Louisiana's Organic Act of 1805 had not provided for automatic advancement to second-class status when the territory reached a population of five thousand adult males, congressional authorization was necessary prior to this step. However, a bill introduced in the House of Representatives on 22 January 1810 calling for the creation of a second-class government for the Territory of Louisiana failed to gain approval at that session. A shortage of time rather than any organized opposition apparently caused Congress to delay action on the measure. Despite this temporary setback, the supporters of the higher classification had resurrected the earlier debate over representative government and its merits. 28

As had been the case since Upper Louisiana had passed under American control, land claims continued to dominate local political discussions, and the board of land commissioners remained at center stage in the ongoing controversy. Because of James Donaldson's absence, the board had discontinued all regular proceedings during the winter of 1806–1807, but following the arrival of Donaldson's replacement, Frederick Bates, in the spring of 1807, the commission resumed its deliberations.<sup>29</sup> In the meantime, Congress had passed new legislation liberalizing certain restrictions previously placed upon confirmation of titles. No longer did the claimant have to produce written permission for claims of less than 800 arpents if he or she could demonstrate they had occupied and cultivated the lands for not less than ten years prior to 20 December 1803. Subsequently, Congress increased the amount allowable from 800 to 2,000 arpents. In addition, it granted the board of commissioners full power to confirm titles in accordance with the laws and established usages and customs of the French and Spanish governments. 30

Upon resuming its regular proceedings, the board made several crucial decisions. It replaced its controversial clerk, Charles Gratiot, with William Christy, and following Christy's resignation, Thomas Riddick assumed those duties. Furthermore, in order to expedite the land-claims proceedings and to accommodate claimants in remote regions, the

commissioners decided to hold regular sessions in various parts of the territory for the purpose of recording claims and receiving testimony.<sup>31</sup> The originally scheduled hearings, however, had to be postponed to a later time, probably because of inclement weather. This gave the board an opportunity to reconsider its decision, and its members decided that only one of them need visit the outlying regions to take testimony. The commissioners designated Frederick Bates to make the trip. He went to Cape Girardeau in late May of 1808 and subsequently visited the districts of New Madrid and Arkansas. <sup>32</sup>

While in Arkansas, Bates encountered numerous difficulties in carrying out his assigned duties. He found the isolated and uneducated settlers in that remote district “entirely unacquainted with every kind of business, except of that of the chase” and ignorant of even the most elementary legal procedures. <sup>33</sup> Following Bates’s return from his journey, the board initiated a serious review of the claims that had been registered during the preceding two and one-half years. The commissioners issued their first formal decisions on 8 December 1808, but the work was tedious and the progress was slow. On 1 February 1810, the commissioners reported to the Secretary of the Treasury that they had recorded 3,056 claims and taken testimony in 2,699 of those cases. They had issued certificates of confirmation on only 323 claims, authorized an additional 167 for survey, and rejected 139. <sup>34</sup>

The slow-paced decision-making process and the unpopular guidelines governing confirmation irritated the territory’s land claimants. In January 1808 holders of unapproved land grants called upon Congress to order the confirmation of every concession issued by the Spanish government except for those that could be proved to be antedated or fraudulent. The following December, they repeated their demands and protested rules that required actual habitation and cultivation of claimed lands, that limited the maximum size of grants, and that voided all grants made after 1 October 1800. <sup>35</sup>

When Congress failed to respond to their demands, the land-claimant group created an ad hoc committee in St. Louis similar to the one they had used to protest Upper Louisiana’s attachment to the Indiana Territory in 1804. In an effort to present the appearance of a united front, they called for the formation of a new general committee representing all districts of the territory to petition Congress for action to resolve the impasse over land claims in the Louisiana Territory. <sup>36</sup>

Their efforts culminated with the opening of a general convention in Ste. Genevieve in August 1809. The delegates designated Edward Hempstead, a popular St. Louis attorney specializing in land-claims cases, the notorious John Smith T from the Ste. Genevieve district, and Hugh McDermid from the St. Charles district as a committee of three to draft a memorial to Congress seeking more favorable terms for confirmation. The convention members adopted two additional resolutions: one recommending that other territorial residents join them in seeking a second-class government, and another calling for John B. C. Lucas’s removal as a land commissioner. <sup>37</sup>

**Credit for this selection of pages from *The Genesis of Missouri From Wilderness Outpost to Statehood* is thanks to The University of Missouri Press, Columbia, Missouri**

**Author’s Notes Cited from this selection:**

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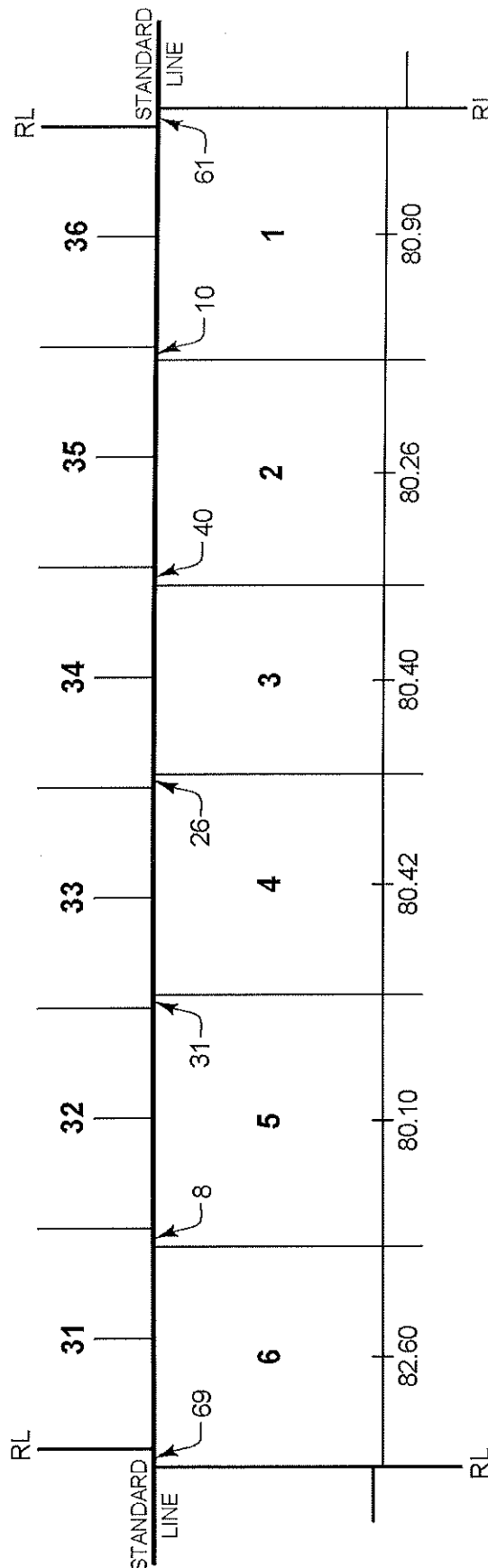
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# USPLSS PROTRACTION CALCULATION PRACTICE

Dr. Richard L. Elgin, PS, PE  
Rolla, Missouri

This problem is to compute some protracted distances along a Standard Line. It is written for the usual protraction scheme as applied in Missouri and Arkansas. (That protraction scheme may be different from other states.) All dimensions shown are GLO. The lap distances are in links. The sketch is not to scale, exaggerated to illustrate the lap distances. Record your answers on the lines provided below in chains, the laps in links. Solutions provided in future edition.



(6) \_\_\_\_\_ (5) \_\_\_\_\_ (4) \_\_\_\_\_ (3) \_\_\_\_\_ (2) \_\_\_\_\_ (1) \_\_\_\_\_

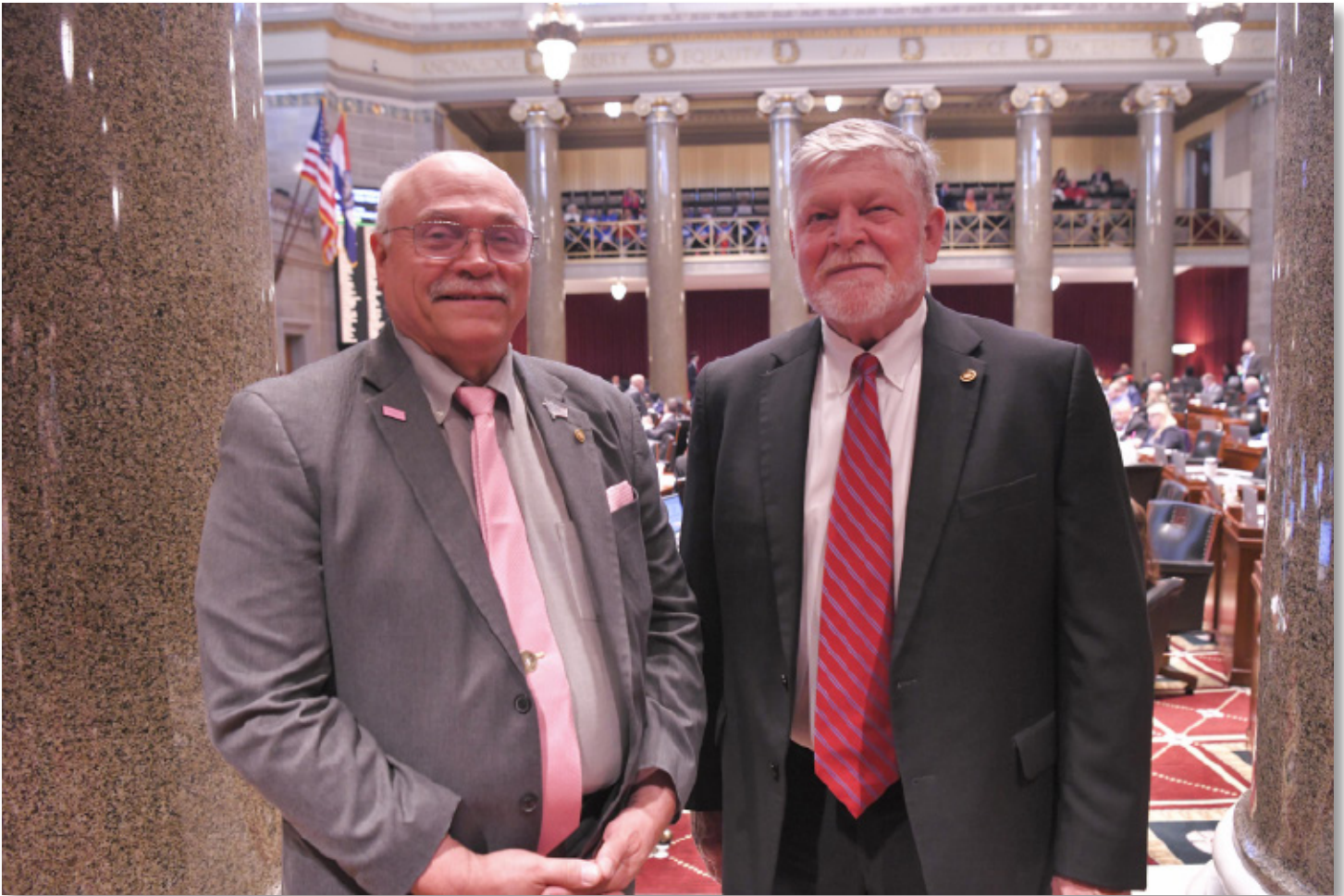
Compute the protracted distance, north line of the NW1/4 for each Section.

(6) \_\_\_\_\_ (5) \_\_\_\_\_ (4) \_\_\_\_\_ (3) \_\_\_\_\_ (2) \_\_\_\_\_ (1) \_\_\_\_\_

Compute the protracted lap distance between the Standard 1/4 Corners to Sections 31-36 and the Blank 1/4 Corner to Sections 6-1. State whether the lap direction, from the Blank 1/4 Corner to the Standard 1/4 Corner is East or West.

## From the 103<sup>rd</sup> Missouri General Assembly

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May 2026: Awaiting the end of the Second Regular Legislative Session outside the House Chambers are Professional Land Surveyors and State Representatives (from left) Don Mayhew and Mark Nolte.

A little extra credit is extended to Rep. Mayhew who recently was awarded “the Best of the Lake” recognition in the Home Contractors/Products/Services category of *Lake Lifestyles Magazine*. Congratulations to both Representatives who maintained active survey practices while serving in the State House!



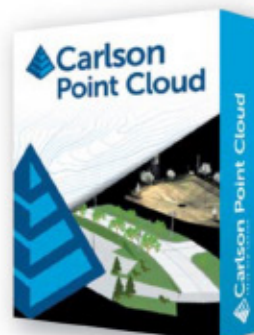
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A photo of the U.S. Geological Survey (USGS) monument near the trailhead to Clingmans Dome (officially renamed Kuwohi), embedded in a large boulder near a large point of boulders at the east edge of the walkway to the dome. Kuwohi is the highest peak in the Great Smoky Mountains National Park and the highest point in Tennessee at 6,643 feet, on the Tennessee/North Carolina border.

According to the Data Sheet for PID FB4135, the monument was first recovered in 1989 by the North Carolina Geodetic Survey and last observed in June of 2021 by the Geocaching. Adjusted with Vertcon by the NCGS in July, 2024, to NAVD 88 Orthometric Ht. of 6311.1 feet, third order vertical.

Photo sent in by Leah Guss, SIUE Survey Student 🇺🇸

## Articles and Photos Welcome

**MSPS offers you an opportunity to showcase your and/or your company's work in the Missouri Surveyor reaching nearly 1000 readers!**

You are invited to share photos and/or stories much like what is in this issue with the rest of our professional community. All that's asked is to take high-quality pictures (thumbnail photos do not scale up very well) and submit the articles in Microsoft Word. Send those with a brief description to either of the magazine's editors listed on the front page and look for your chance to be in the next edition! 🇺🇸





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