

MISSOURI SURVEYOR

A Quarterly Publication of the
Missouri Society of Professional Surveyors

Jefferson City, Missouri

December 2014



CALENDAR OF EVENTS

2015

February 11, 2015
Board Meeting and Capitol Visitation
Jefferson City, MO

May 8-10, 2015
Board Meeting, Golf Tournament
37th Annual Spring Workshop
Lodge of Four Seasons,
Lake Ozark, MO

July 18, 2015
Board Meeting
Jefferson City, MO

August 26-28, 2015
Review Course,
Best Western Capital Inn,
Jefferson City, MO

October 8-10, 2015
58th Annual Meeting and convention
Tan-Tar-A Resort, Golf Club, Marina and
Indoor Waterpark
Osage Beach, MO

December 5, 2015
Board Meeting
Jefferson City, MO

Cover Photo:
Courtesy of Margaret Martin,
Jefferson City taken
November 16, 2014.

Donald R. Martin, Editor



Notes from the Editor's Desk

Donald R. Martin



Here it is – the season of long nights, the time for Thanksgiving, a Merry Christmas and a Happy New Year, and the December edition of Missouri Surveyor! My pard Tripod the three-legged ground hog wished all a cool Yule by decking the transit and backsight with wreath, garland and ornaments during our first snow before packing it in to the burrow. See ya' come February 2nd my faithful forecaster of fading frozen flecks and the coming of farmlands to be furrowed, the return flight of water's fowl and fields flush with flowers and fertilizer.

After last edition's editorializing about content I am proud to bring wonderful examples to your winter reading. Not in particular order I cite features celebrating surveyors and our community - MSPS awards honoring John Holleck, Sharon Herman and Robert Ubben; photographs from our Annual Meeting (thank you Abi Padgett); presentation of the Dan Lashley scholarship to Nick Buettner; introductions of our newest Directors; a presidential profile and *Meet Our Members*. Then there are members making news by *making the News* – Robbie and Rodney Neece appearing on KSN TV news; Jon Cole photo featured in the Columbia Tribune; and some of our own news, an announcement from MSPS partner GeoLearn regarding new course offerings featuring past-president Mike Flowers.

I suggest readers pay particular attention to the pages focused on changes to Missouri statute 327.272, *Practice as professional land surveyor defined*. Detailed in that portion of this edition are changes to law opening new opportunities and accompanying responsibilities for Missouri PLS's. Please read the writings from the Board of Registration, MoDOT, the Board's Counsel Curt Thompson and the "new" 327. This is important!

Another feature worthy of special reader attention is *The Initial Point to the 5th Principal Meridian* by past-president Dick Elgin. While the good professor does a masterful job recounting a brief history leading to the junction of the PM and the Baseline, he calls attention to the upcoming Bicentennial of the Initial Point's establishment on November 10, 2015. While this editor will be celebrating his own birthday (gifts welcome) that day, Dick reminds surveyors subject to the most far-reaching Initial Point in the USPLSS to honor the GLO surveyors who subdivided regions of six states spanning from the Mississippi Delta to Canada. Dr. Elgin will be at the IP on November 10th welcoming others with a celebratory toast and song. It reminds me of my first visit there while a younger surveyor. In the company of Craig Ruble and Norman Brown, I was like a feral child being schooled by these two ol' survey wolves; I believed their tales and lore. Once at the Point I even believed their proclamation of the proper way to honor the stone and its meaning, "Kid, ya' gotta drink a beer and take a pee on the stone." Long story short...as I stood on the deck railing and finished the output of my previous download Norman and Craig looked on as though they were impressed. The looks on the faces of the teachers leading the grade school field trip down the boardwalk weren't quite as warm...

Enjoy this edition and don't forget this is also the season of membership renewal and volunteering for committees. **Do both!** Be on the lookout for news from the St. Louis Chapter; their serious about the 5th PM IP Bicentennial and may need your help in memorializing. Joining, serving and honoring – three acts of *surveyors leading the way!* And remember Missouri Surveyor is your voice; I welcome that which you may have to say or write.

Donald

THE MISSOURI SURVEYOR

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Professional Surveyors

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The Missouri Surveyor is published quarterly by the Missouri Society of Professional Surveyors, to inform land surveyors and related professions, government officials, educational institutions, contractors, suppliers and associated businesses and industries about land surveying affairs. Articles or opinions appearing in this publication do not necessarily reflect the viewpoints of MSPS but are published as a service to its members, the general public and for the betterment of the surveying profession. No responsibility is assumed for errors, misquotes or deletions as to its contents. Articles may be reprinted with due credit given.

President's Message

Adam Teale



As I write my first message as MSPS President the magnitude of the responsibility bestowed upon me is weighing heavily. I would like to thank the Society for giving me the opportunity to serve you in this position for the next year. Thank you to Robert Ubben and other recent past presidents while I served on the Board for their guidance, leadership, and direction. Congratulations to our recent award recipients, John Holleck, Sharon Herman, and Robert Ubben. John provided many years of service as our publication editor, Sharon volunteering many hours promoting the land surveying profession and served as the first female MSPS President, and Robert for

his dedication to our youth and working with students at Longview Metropolitan Community College and Blue Valley Center for Advanced Professional Studies as well as serving in leadership roles with MSPS, KSLs, and the Kansas City Metro Chapter of MSPS.

As we move from one presidency to another our goal is to continue moving forward with the progress made over the recent years. The move of the Missouri Land Survey Program to the Department of Agriculture is complete with minimal snags. We need to continue working with the Director of Agriculture to get the New Standards promulgated. Unfortunately the Land Survey Advisory Committee is stagnant as we wait for appointments by the Governor. The Board of Directors will continue to evaluate our Education Bill (SB 704) and work towards its eventual passage.

What concerns me more than the passage of an education bill is the general lack of interest in our land surveying profession. I have attended too many meetings where the discussions were: lack of education, mathematical incompetence, poor understanding of the USPLSS and its breakdown, poor business practices, poor client communication, and the need for mentorship programs. Regardless of your personal position regarding additional educational requirements, examination results over recent years are alarming and speak for themselves. Changes must be made! Although the pass/rates remain in the 55% range for the Fundamentals of Land Surveying (FS) and Principals of Land Surveying (PS) National Exam the candidate numbers have dropped significantly since 2007. In 2007 there were 47 (FS) and 59 (PS) candidates. In 2014 we had 11 (FS) and 23 (PS) respectively. In the same time period the Missouri State Specific candidate numbers have dropped from 90 to 66. The Missouri State Specific Exam was split into Part I (Standards, Statutes, Ethics) and Part II (Missouri USPLSS) in 2013 of which 61% passed Part I and 27% passed Part II. Since 2007 60 of the 91 newly licensed Professional Land Surveyors were through comity. The overall numbers are there to validate the lack of interest in land surveying within our borders and once again prove the lack of basic understanding and mathematical competence to pass Part II of the Missouri Exam. We have the Trig-Star, the Scouting Merit Badge, and the CST Program to help create awareness of our profession but more is needed. I challenge the membership to think outside the box and what can be done to interest the younger generation. Something new, different, and techy to intrigue the smart phone addicted generation.

In closing I would like to congratulate the newly licensed Professional Land Surveyors and Land Surveyors in Training. Active participation is encouraged and needed in all committees. The best way to get acquainted with fellow professionals is to serve alongside them. Find a committee or two that you are interested in and jump into the fire. You won't get burned and you will appreciate it as the years pass.

May we bless others this holiday season as we have been blessed. 🇺🇸

Schaer Science: Land Survey

by Jessica Schaer, KSN Reporting, Joplin, MO & www.fourstatehomepage.com

JOPLIN, MO.---

“We’re establishing the boundaries of somebody’s property,” said Rodney Neece, professional land surveyor.



At first glance, land surveying may not look too glamorous, but second generation surveyor, Rodney Neece, says there’s more to it.

“If you buy a house or anybody buys a house, it is typically the biggest investment they’ll ever make in their lifetime. It’s the biggest asset that anyone will ever own. And why not know where the boundaries of that property is, so you can properly maintain it, and protect it,” said Neece.

He and his team often outline the dimensions of lots in a platted subdivision or break down square mile sections of rural land.

“We also deal with flood plane management, construction staking, a little bit of everything involved with being a surveyor,” he said.

Neece says construction surveying can especially be difficult.

“Simply because it’s typically a rectangle, making sure all the lines are exactly the correct dimension, and that they measure 90 degrees between them when they’re trying to build something square,” said Neece.

“When you get into construction, and you’re dealing with down to an eighth of an inch or a sixteenth of an inch, it’s got to be right on the money,” said Robbie W. Neece, professional land surveyor.

Rodney’s father, Robbie, also known as Wayne, has seen many changes since getting his surveyors license in 1956. One of those include older surveying equipment, like a mount transit from the early 1900’s, to modern day GPS units that cost upwards of \$25,000.



“The speed and all of our, figuring our problems out now with the equipment we’ve got, with the field equipment, it’s just a dream,” said Robbie.

“GPS is just a tool that we use to measure with. Our job is still to keep to property lines where they have always been. We started out by pulling steel tapes and having instruments sitting on tri-pods, to now we’re working off satellites. So we went through several different changes over the years,” said Neece.

On a windy day, the older equipment doesn’t work as well. But, where there’s a lot of trees and a lot of foliage, the newer equipment doesn’t work as well.

“The GPS is like I said, a measuring tool. We’re using the satellites as a constellation, just like you would stars in the sky. And they’re triangulating and computing your position on this round piece of Earth that we’re standing on,” said Neece.

Both surveyors met us at a popular surveying spot in the area, the Tri-State Marker. The monument sits just west of the actual point where Kansas, Missouri, and Oklahoma come together. The men say that could cause some confusion for surveyors not from this area.

“If somebody came along that wasn’t familiar with the area, and measured off the center of the rock monument, they were off,” said Robbie.



Surveying is often retracing the steps of surveys that have been done in the past to make sure everything is as accurate as possible.

“The importance to me that, is that to save the original records,” said Robbie.

“I don’t really like to call it a science, I like to call it’s an art. An art and the science of putting measurements on the ground,” said Neece.

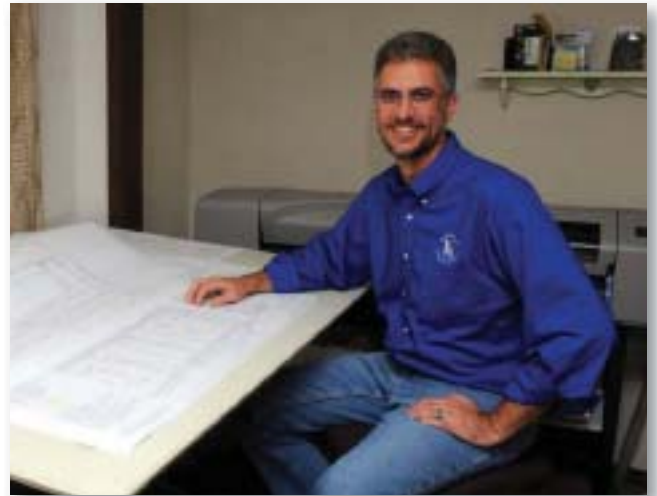
Both Robbie and Rodney are from Stewart and Neece in Joplin. The two men say a bachelor’s degree is necessary to become a surveyor as well as an understanding of geometry, trigonometry, and algebra. 🇺🇸

Surveyor in the News

Columbia Daily Tribune, Nov. 20, 2014

Jon Cole, Missouri PLS and President of the MSPS Central Chapter was featured in the Columbia Tribune. John, the principal of Merebrook LLC Land Surveying of Columbia was proudly featured in his local newspaper while wearing his MSPS logo shirt (thank you Public Relations/Sales Committee).

In the feature he described his role in surveying as, "I enjoy the outdoor work, the mental aspect of it, the math," he said. In land surveying, I "make a pretty picture that tells the story of what I found and what it all means." 🇺🇸



RTI Drafting & Design Student Nick Buettner Awarded the O. Dan Lashley Memorial Scholarship

For the Fall 2014 semester, Nick Buettner was awarded the O. Dan Lashley Memorial Scholarship at Rolla Technical Institute (RTI) in Rolla. Presenting the scholarship to Nick are selection committee members Darrell Pratte, PLS and J. Michael Flowers, PLS. Nick is from Steelville, MO. He is currently interning with Mr. Kerry Summers, Crawford County Assessor, and will graduate from the Rolla Technical Institute Drafting & Design program in December 2014.



Darrell Pratte, PLS, Nick Buettner, J. Michael Flowers, PLS

The \$500 scholarship was commissioned by O. Dan Lashley, PLS, a long-time Department of Natural Resources surveyor and Rolla resident, specifically for an RTI Drafting & Design second year student interested in land surveying. Mr. Lashley had a love of surveying, educating young people about the profession, and encouraging them to consider a career as a Professional Land Surveyor. 🇺🇸



**Thanks to the Southeast Chapter of MSPS
for your generous contribution to the Dan
Lashley Memorial Scholarship Fund!**



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Surveying Legislation Enacted!

Practice as Professional Land Surveyor Expands




Additions to the law defining the practice of land surveyors in Missouri have been enacted and are now a part of our statutes. As of August 28th, 2014 the acts of favorable votes in the Missouri legislature followed by acceptance and authorization of Governor Nixon have changed the realm of surveyors' dominion. With simple yet significant enhancements to Missouri Revised Statutes (RSMo) chapter 327.272 the scope of services which are solely within the purview of professional surveyors may now include the writing of the property descriptions and the execution of surveys for rights-of-way and easements. The legislation changing RSMo 327 was supported by the Missouri Society of Professional Surveyors as well as the Land Survey Division of the Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects.

A hint of a successful legislative effort to change RSMo 327 began to emerge in the last week of April past when the bill embodying new language for 327, SB 809 was voted “do pass” out of the Professional Registration Committee. On May 16 MSPS’s legislative advisor Mo McCullough reported to our Board and members of the Legislative Committee “SB 809 was just *Truly Agreed* and *Finally* passed.” After that enactment merely awaited the Governor’s signature and the waning days of summer to become law. It was signed by Governor Nixon on July 1st and became effective as of August 28th.

SB 809	Modifies provisions of law regarding licensing of architects, professional engineers, professional land surveyors, and professional landscape architects		
Sponsor:	Wasson		
LR Number:	4517H.05T		Fiscal Note available
Committee:	Financial and Governmental Organizations and Elections		
Last Action:	7/1/2014 - Signed by Governor	Journal Page:	S1913-1914
Title:	HCS 327.272	Calendar Position:	
Effective Date:	August 28, 2014		
House Handler:	Elmer		

The successful legislation is significant in and of itself but more profound is the expansion of the legal definition of surveying which now brings some description writing as well as some easement and R/W locating into the “exclusive” practice of land surveying. So substantial is the impact of these additions, the Land Survey Division of the Board of Registration has undertaken direct action to inform PLS’s of the changes to 327. In the following pages *Missouri Surveyor* joins the Board of Registration to present enlightening and instructive communications regarding the “new” RSMo 327.272:

- Introductory memorandum from the Board of Registration
- A position statement by the Board of Registration
- MoDOT instruction to consultants
- “What Does it Mean?” by General Counsel to the Board of Registration
- Associated MoDOT policies
- RSMo 327.272 with additions highlighted 

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Surveying Legislation Enacted! *(continued)*

“MISSOURI BOARD FOR ARCHITECTS, PROFESSIONAL ENGINEERS, PROFESSIONAL LAND SURVEYORS AND PROFESSIONAL LANDSCAPE ARCHITECTS”

MEMORANDUM

TO: All Missouri Licensed Professional Engineers and Professional Land Surveyors

FROM: Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects

RE: Recent Changes to Section 327.272, RSMo

DATE: November 20, 2014

The definition of Professional Land Surveying was amended, via SB 809, by the General Assembly in legislation passed in 2014 and signed into law by Governor Jay Nixon. The new language became effective on August 28th.

Through some of its licensees, the Board became aware of a letter sent by the Missouri Department of Transportation (MoDOT) to its consultants stating SB 809 applies to “all recordable documents with a legal description.” In that letter, MoDOT concluded that such documents are “to be signed and sealed by a Professional Land Surveyor.” MoDOT also stated that the “new requirements apply to all documents used by the Commission for the acquisition and conveyance of property rights, including deeds.” The Board concurs completely with that analysis. It also agrees with MoDOT that the new requirements do not apply when access rights are the only rights being acquired; when a temporary easement is being acquired; or, when the legal description is merely being copied from a previous deed. MoDOT’s letter is limited to **its** conveyances, but that is understandable because it was sent to MoDOT’s consultants.

The Board believes that the requirements apply to **all** documents used for the conveyance of real property rights, regardless of who acquires or conveys those rights. Therefore, the Board prepared and adopted the attached “Position Paper.” Also attached, with consent, is a copy of MoDOT’s letter. We think you will find both documents helpful in trying to understand the meaning of the recent changes to Section 327.272, RSMo.

JK/

Attachments

Surveying Legislation Enacted! *(continued)*

POSITION PAPER

Published by: The Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects

Pursuant to the change in Section 327.272, RSMo, which became effective August 28, 2014, it is the position of the Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects that the creation of any new recordable property description shall be prepared by a Professional Land Surveyor. Please note: If the recording of a property description is not required, the law remains unchanged.

For enforcement purposes, if the new recordable property description is prepared by anyone other than a Professional Land Surveyor, such action would be considered the unlicensed practice of land surveying and that person would be subject to action per Section 327.281, RSMo.

A new recordable property description is defined as a description for any tract of land that is not already identified in the public record. The Professional Land Surveyor preparing a new property description is reminded that the creation of the description is also subject to requirements as set forth by Chapter 60, RSMo.

SO ORDERED AND EFFECTIVE THIS 11th DAY OF NOVEMBER, 2014.




Judy Kempker, Executive Director
Missouri Board for Architects, Professional
Engineers, Professional Land Surveyors and
Professional Landscape Architects

(continued on next page)

Surveying Legislation Enacted! (continued)

MoDOT

Missouri Department of Transportation
David B. Nichols, Director

105 West Capitol Avenue
P.O. Box 270
Jefferson City, Missouri 65102

573.751.2551
Fax: 573.751.6555
1.888.ASK MODOT (275.6636)

September 3, 2014

Dear Consultant:

On June 1, 2014, the Governor signed SB809, which will now require all recordable documents with a legal description to be signed and sealed by a Professional Land Surveyor (PLS). This law took effect on August 28, 2014. The following paragraphs outline the procedures MoDOT will follow in response to SB809. The Engineering Policy Guide (EPG) has been updated to reflect these new requirements.

The new requirements apply to all recordable documents that contain a legal description and affect the location of the boundary lines of the subject property. Further, it affects all recordable documents for both the acquisition of property rights (negotiated and condemned) and the conveyance of property rights. The PLS is now required to sign and seal the legal description that will be attached to the recordable document. All recordable documents are being updated to require the actual legal description to be placed on an Exhibit A. The Exhibit A will include a place for the PLS to sign and affix his/her seal.

In many situations, it is necessary to prepare multiple recordable documents to release all outstanding interests in properties being acquired. It is not necessary to obtain multiple original exhibits. In other words, a copy of an Exhibit A signed and sealed by a PLS may be attached to the recordable document.

The signature and seal of a PLS on legal descriptions is NOT required in the following situations because the locations of the boundary lines are not affected.

- When the only property right being acquired or conveyed is access rights.
- When the only property right being acquired is a temporary easement.
- When the entire property is being acquired, and the legal description is being copied from the last deed of record.
- When an excess parcel is being conveyed exactly as it was acquired.

Should you have questions, please contact your MoDOT Project Manager. .

Sincerely,

Kelly Lucas
Right of Way Director



Our mission is to provide a world-class transportation experience that delights our customers and promotes a prosperous Missouri.
www.modot.org

Surveying Legislation Enacted! *(continued)*

The MoDOT Engineering Policy Guide is referenced in the correspondence to Consultants from MoDOT regarding the changes brought about by new language in RSMo 327.272. In that memo, Right of Way Director Kelly Lucas writing on MoDOT's behalf informs readers of updates to the Engineering Policy Guide (EPG).



Below are excerpts from the EPG addressing those changes:

236.4.6.2 Methods of Legally Describing the Fee or Portion Thereof

Prior to presenting the general warranty deed, quitclaim deed, or other such document to the grantor, a professional land surveyor must review the property description contained within the document to verify that the parcel described in the property description corresponds with the right of way plans, and to verify that the right of way plans correspond with the survey information gathered by the professional land surveyor. The professional land surveyor (PLS) shall sign and affix the PLS's seal on the property description of the recordable document for each property description to be used in acquiring realty rights or conveying realty rights as outlined in EPG 238.2.17 Professional Land Surveyor Review. To avoid potential delays in the acquisition process, it is recommended that district right of way work closely with the professional land surveyor and district design to ensure that the right of way plans include tie-ins to all roadway centerlines that intersect with the new centerline, in addition to tie-ins of the existing centerline with the new centerline at both the beginning and ending of the project.

238.2.17 Professional Land Surveyor Review

Legal descriptions attached to a recordable document for both the acquisition of property rights (negotiated and condemned) and the conveyance of property rights, which affect the location of the properties boundary lines are required to have a Professional Land Surveyors (PLS) signature and seal.

The PLS assigned to a project will verify that the property descriptions written for acquisition of property rights (negotiated and condemned) and conveyance of property rights, are based on a legal survey tied to the PLS system and meets all requirements of the Engineering Policy Guide. Review may be skipped if project surveyor writes the descriptions.

Prior to any right of way being negotiated, the PLS will review all descriptions if written by others to ensure these descriptions meet the following criteria:

1) A Professional Land Surveyor surveyed any description of property ties to the Public Land Survey System (PLSS) used in deeds. This would include the description of the centerline if used to tie the property to the PLSS or direct traverse ties to monuments in the PLSS. 2) Descriptions written follow guidance as described in the Engineering Policy Guide. Once satisfied with the review, the PLS will sign and affix the PLS's seal to the property description attached to the recordable document.

In situations where multiple recordable documents are prepared to release all outstanding interest in properties being acquired, it is not necessary to obtain multiple original exhibits. A copy of the property description signed and sealed by a PLS may be attached to the recordable document.

The signature and seal of the PLS on legal descriptions is not required in the following situations because the locations of the boundary lines are not affected:

- When the only property right being acquired or conveyed is access rights.
- When the only property right being acquired is a temporary easement.
- When the entire property is being acquired, and the legal description is being copied from the last deed of record.
- When an access parcel is being conveyed exactly as it was acquired. 🇺🇸

(continued on next page)

Surveying Legislation Enacted! (continued)

The Change to Section 327.272, RS MO; What Does it Mean?

by Curtis F. Thompson, General Counsel, Missouri Board for Architects, Professional Engineers, Professional Land Surveyors and Professional Landscape Architects

The definition of Professional Land Surveying was amended by the General Assembly in legislation passed in 2014 and signed by Governor Nixon. The new language became effective on August 28, 2014. The changes were part of a larger package of amendments to Chapter 327, RSMo, many of which were cosmetic to harmonize with changes adopted in previous legislative sessions.

There were three additions to the definition of professional land surveying and a clarification regarding responsibility of surveyors when the health, welfare, or safety of the public is involved with a surveying activity. The definition of professional land surveying was expanded to include the “preparation of property descriptions,” “the survey and location of rights-of-way and easements” and a service or work that involves “design surveys.” The change regarding “design surveys” continues to be non-exclusive to land surveyors except under circumstances in which the design surveys affect real property rights. Other professionals such as engineers and architects can prepare design surveys if property rights are not affected.


It is important to note the distinctions between the language used in the other two additions. The first one requires land surveyors to perform service or work involving a preparation of property descriptions. The second one requires land surveyors to perform service or work involving survey and location of rights-of-way and easements. Please note that if a deed does not require either a preparation of a property description or a survey and location of rights-of-way or easements, the law remains unchanged. Others, such as lawyers and real estate agents and brokers, who copy descriptions in order to complete a sale of real estate are not affected. The Board reminds its licensees that blanket easements can no longer be used by condemning authorities under Section 523.282, RSMo, passed in 2007.

While drafting this article, the Board became aware of a letter sent by the Missouri Department of Transportation to its consultants that SB 809 applies to “all recordable documents with a legal description.” In that letter, MoDOT concluded that such documents are “to be signed and sealed by a Professional Land Surveyor.” The department also stated that the “new requirements apply to all documents used by the Commission for the acquisition and conveyance of property rights, including deeds.” The Board concurs completely with that analysis. It also agrees with MoDOT that the new requirements do

not apply when access rights are the only rights being acquired, when a temporary easement is being acquired or when the legal description is merely being copied from a previous deed. MoDOT’s letter is limited to its conveyances, but that is understandable because it was sent to MoDOT’s consultants. The Board believes that the requirements apply to all documents used for the conveyance of real property rights, regardless of who acquires or conveys those rights.



A new section — Section 327.272.3, RSMo — was also adopted, which reads “Professional land surveyors shall be in responsible charge of all drawings, maps, surveys, and other work product that can affect the health, safety, and welfare of the public within their scope of practice.” This section means precisely what it says. Land surveyors are responsible for any professional land surveying completed on any project they undertake in conjunction with others if the surveying affects the public health, safety or welfare. There may have been a misunderstanding regarding the authority of a land surveyor when multiple disciplines are involved with a project, and this clarification makes it clear that when health, welfare or safety of the public is implicated, a land surveyor is in charge of all mapping or surveying work for that project. 🟩



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SURVEY COMPANY

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Surveying Legislation Enacted!

Practice as Professional Land Surveyor Defined

327.272 . 1. A professional land surveyor shall include any person who practices in Missouri as a professional land surveyor who uses the title of “surveyor” alone or in combination with any other word or words including, but not limited to “registered”, “professional” or “land” indicating or implying that the person is or holds himself or herself out to be a professional land surveyor who by word or words, letters, figures, degrees, titles or other descriptions indicates or implies that the person is a professional land surveyor or is willing or able to practice professional land surveying or who renders or offers to render, or holds himself or herself out as willing or able to render, or perform any service or work, the adequate performance of which involves the special knowledge and application of the principles of land surveying, mathematics, the related physical and applied sciences, and the relevant requirements of law, all of which are acquired by education, training, experience and examination, that affect real property rights on, under or above the land and which service or work involves:

- (1) The determination, location, relocation, establishment, reestablishment, layout, or retracing of land boundaries and positions of the United States Public Land Survey System;
- (2) The monumentation of land boundaries, land boundary corners and corners of the United States Public Land Survey System;
- (3) The subdivision of land into smaller tracts and preparation of property descriptions;
- (4) The survey and location of rights-of-way and easements;
- (5) Creating, preparing, or modifying electronic or computerized data relative to the performance of the activities in subdivisions (1) to (3) of this subsection;
- (6) Consultation, investigation, design surveys, evaluation, planning, design and execution of surveys;
- (7) The preparation of any drawings showing the shape, location, dimensions or area of tracts of land;
- (8) Monumentation of geodetic control and the determination of their horizontal and vertical positions;

- (9) Establishment of state plane coordinates;
- (10) Topographic surveys and the determination of the horizontal and vertical location of any physical features on, under or above the land;
- (11) The preparation of plats, maps or other drawings showing elevations and the locations of improvements and the measurement and preparation of drawings showing existing improvements after construction;
- (12) Layout of proposed improvements;
- (13) The determination of azimuths by astronomic observations.

2. None of the specific duties listed in subdivisions (5) to (13) of subsection 1 of this section are exclusive to professional land surveyors unless they affect real property rights. For the purposes of this section, the term “real property rights” means a recordable interest in real estate as it affects the location of land boundary lines.

3. Professional land surveyors shall be in responsible charge of all drawings, maps, surveys, and other work product that can affect the health, safety, and welfare of the public within their scope of practice.

4. Nothing in this section shall be construed to preclude the practice of architecture or professional engineering or professional landscape architecture as provided in sections 327.091, 327.181, and 327.600.

(L. 1969 S.B. 117, A.L. 1981 S.B. 16, A.L. 1999 H.B. 343, A.L. 2010 H.B. 1692, et al., A.L. 2014 S.B. 809) 

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Missouri Surveyor Profile: New MSPS President Adam Teale

At the Annual Meeting of the Missouri Society of Professional Surveyors Adam Teale was installed as President. A second generation Missouri surveyor and MSPS president, Adam is a Principal of Midland Surveying, Inc. in Maryville and St. Joseph, MO. He personally practices in the full array of the profession including GPS control surveys, project scheduling, research and analysis of field surveys, platting, and PLSS corner registration.

Adam has a B.S. in Geography and Surveying from East Tennessee State University. He is a licensed professional surveyor in Missouri, Iowa, and Illinois and a Certified Federal Surveyor.

President Teale (#57 – not to be confused with # 36) shared the following thoughts with Missouri Surveyor:

(Mo Surveyor) What inspires you to serve as President of MSPS?

(#57) Six or Eight years ago I agreed to be nominated for the board. I was naïve and didn't know what I was getting into. With each passing year I meet other Missouri surveyors gained respect for them. As president I would like define committee roles with definite purposes. Committee effectiveness and streamlining are goals I wish to accomplish.

(Mo Surveyor) What does leadership mean to you?

(#57) Good leaders remain humble. They best influence others by character, example, and attitude. In this manner expectations of themselves and others are exceeded.

(Mo Surveyor) What issues are the most important for MSPS to address?

(#57) An important issue for MSPS to address is the lack of interest in land surveying. We need to think outside the box and figure out what might excite young people about our profession. Over time I believe the pass/fail rates will take care of themselves but that lack of individuals sitting for the exam is most concerning to me.

(Mo Surveyor) What is the most important quality for an association president to have?

(#57) A good president welcomes all voices while keeping Board meetings on track. They support committee chairs but allow committees the freedom to make their own decisions.

(Mo Surveyor) What do you consider your most important contribution to MSPS?

(#57) I believe important contributions to any society, organization, or club are determined by those with whom you serve. I will work to make a difference in the Society and I like to think my most important contribution is yet to come. 🟩



Missouri Surveyor Profile: New MSPS Director Earl Graham

At the Annual Meeting of the Missouri Society of Professional Surveyors Earl Graham was installed as Director. Earl is the Director of Surveying for Grimes Consulting, Inc., in South St. Louis County. He was licensed in Missouri in 1988 and over his more than 35-year surveying career has earned licenses in five adjoining states as well as Colorado. Mr. Graham career has spanned the waning days of transit and chain through total station with electronic data collection to contemporary methods of GPS observations and VRS networks.

He leads a team that serves major commercial and industrial clients in surveying needs across the region. Earl's diverse background includes rural sectional tracts for mining and timber as well as urban surveys and metropolitan redevelopment.

Earl earned an Associate of Science degree from Mineral Area College and currently resides in Park Hills. He chairs

MSPS' MoDOT committee and has twice served as the director of MSPS (MARLS).

(Mo Surveyor) What inspires you to serve on the Board of Directors of MSPS?

(EG) I love the profession and feel I need to give back. This is a way that fits me.

(Mo Surveyor) What issues are the most important for MSPS to address?

(EG) Matters of the image of this profession, educational standards, and promoting surveying as an interesting and



(continued on next page)

Missouri Surveyor Profile (continued)

viable profession to the next generation.

(Mo Surveyor) What do you think is the most important quality a board should have?

(EG) Respect! Having enough respect for each other that different points of view can be expressed without hard feelings.

(Mo Surveyor) What is the most important quality for a board member to have?

(EG) A broad, flexible view of the organization with an ability to focus on the task-at-hand.

(Mo Surveyor) What do you consider your most important contribution to MSPS?

(EG) The work I did with MoDot in the 90s. We at MARLS (MSPS) helped lead that agency to a more compliant means of rights-of-way being surveying and monumented. I enjoyed chairing that effort for this Society and sharing our professionalism with that government commission. 🇺🇸

Missouri Surveyor Profile: New MSPS Director Charles Quinby

At the Annual Meeting of the Missouri Society of Professional Surveyors Charles Quinby was installed as Director. The President of the St. Louis Chapter of MSPS, Chuck is the staff PLS with Engineering Design Source, Inc. Originally from Northeast Ohio Charles has been proudly involved in the practice of Missouri surveying since 2001.

Before landing in the St. Louis area, Mr. Quinby served our nation as a field artillery surveyor in the United States Army. While moving through the ranks stateside and with tours in Germany and South Korea Chuck also attained diplomas for Associated of Arts and Bachelor of Science from the University of Maryland.

Before leaving the Army he was an instructor of Surveying & Land Navigation as well as a Training Developer. Charles Quinby shared the following thoughts with Missouri Surveyor:

(Mo Surveyor) What inspires you to serve on the Board of Directors of MSPS?

(CQ) I believe there is much to learn and accomplish by being part of the Board of Directors. While being Co-Chair of the Public Relations/Sales, I've had the opportunity to listen to members as they express their concerns about our profession. As a Director I would like to bring those concerns to the forefront and be a part of the solution as they are addressed.

(Mo Surveyor) What issues are the most important for MSPS to address?

(CQ) The ageing Surveyor is the most important one. How do we attract new blood to our profession? How do we train them and help them get licensed before we reach the age of retirement? I believe the Board is addressing this: I look

forward to being part of the solution.

(Mo Surveyor) What do you think is the most important quality a board should have?

(CQ) Balance would be a quality for a board to have. Providing leadership to a profession and serving the people of that profession requires balance. Doing what is best for the profession may not be popular in the eyes of the people of that profession. Yet, always making the people happy may not allow the profession to grow in a healthy manner. It is the Boards' job to find that balance and lead with it.

(Mo Surveyor) What is the most important quality for a board member to have?

(CQ) Care is the quality that comes to mind. A Board member has to care about his profession and the direction it's headed. He must care also about the Land Surveyor and the issues that concern him. Our actions on the Board should never create a burden for anyone to live under but instead instill creativity and hope for others to thrive in.

(Mo Surveyor) What do you consider your most important contribution to MSPS?

(CQ) As of today I've contributed little more than a warm body. When it's all said and done I would like to be thought of as one who embraced change. The change in our profession and the change in technology while holding fast to our standards and encouraging others to do the same. 🇺🇸



Meet Our Members!

LS Member

Jeremy M. Powell
Blue Springs, MO



Position:

Managing Member
Powell and Associates, LLC

Focus of survey practice:

3D laser scanning, land surveying, and mapping for both the private and public sector.

Most memorable project:

Most memorable is the USACE Water Supply Transmission System Study. It was our first bathymetric survey and notice to proceed came in late December.

The project posed many challenges. The sonar system we rented was assured as first rate; instead it was no more than a fish finder atop a homemade plywood mount - not survey grade. I gave it a try and quickly realized we needed better option. Thus I bought our first single beam sonar system via overnight shipping and got to work. It was a race to beat the winter's freeze, but we hit the water trolling a partially frozen lake as sleet was falling. The crew and myself realized shivering in an aluminum boat without a fishing rod is not much fun!

Likes about surveying:

I like that no two projects are the same and I really enjoy delivering projects that exceed the client's expectations.

Why a member of MSPS:

I started out as an Associate Member back in 2000 and attended a conference here and there, but never got too involved. As anyone that has started a business knows, it takes a lot of effort and time, which does not leave much time for family, let alone outside activities. However, I know that it we all must do our part to assure that our profession continues to be vital and respected and that is why I am becoming more active in the MSPS. 🇺🇸

LS Member

Rich Howard
Vienna, Missouri



Position:

Land Surveyor &
MSPS Board of Directors

Focus of survey practice:

Since retiring from my former job I have been working with a fellow surveyor in my area. We focus on boundary surveys, elevation certificates and topo's.

Most memorable project:

My most memorable project was working as a party chief for a Professional Land Surveyor who was overseeing a large boundary survey in Shannon County. This is where I really started the learning process of researching GLO records and subsequent surveys then taking office research and turning it into field activity. That sense of connecting history, previous works and field evidence had me hooked!

Likes about surveying:

I like variety, the challenge, the unknown; projects are rarely a "sure thing". It requires me to call upon complex problem solving skills. to each survey. The quirks, abstractions and variations found in the full scope of differing surveys create circumstances which are both tough and fun. The journey of "Following in the Foot Steps" can be a strange trail sometimes (What were they thinking? Why did they do that?) but the reward is when all the effort in research and the weighing of evidence pays off.

Why a member of MSPS:

I became an Associate member of MSPS and NSPS when I decided I wanted to obtain a Professional Land Surveyor license. Along the way to obtaining my Professional Land Surveying license I met a lot of Surveyors that I look up to for all their knowledge on surveying. Being a member of MSPS can be and is an enjoyable learning experience. 🇺🇸

MSPS/KSLS

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2014 Awards

ROBERT UBBEN **SURVEYOR OF THE YEAR**

Each year since 1987, the Surveyor of the Year Award has been presented to a dedicated and accomplished member of MSPS. The recipient is one who upholds the principals of land surveying, while giving their time and efforts to better the land surveying profession through the organization. Over the years the recipient of this award has served multiple terms for MSPS and for the Kansas City Metro Chapter of MSPS and the Kansas Society of Land Surveyors. He is always ready to lend a hand on special projects that perpetuate and strengthen the surveying profession. He has served on nearly every MSPS Committee and has been on the Board since 2010. This past year he oversaw many of the changes within the Land Survey Program, as it became a division of the Missouri Department of Agriculture.



This year's Surveyor of the Year holds his family and his work in high regard, so it's no surprise that his surveying career began alongside his father and brother back in 1987 with Larkin & Associates in Kansas City. He received his Professional Survey License in Missouri in 1995 and also in Kansas in 1997. Today, he sits on the Board of Directors and is an owner and survey department manager at his firm, Affinis Corp. Over the course of his 27 year career, he has always welcomed new challenges, pushing himself to grow as a land surveyor and becoming an integral part of his company.

Surveyor of the Year is awarded to someone who goes above and beyond to strengthen the land surveying profession and this person exemplifies these characteristics. He is always willing to volunteer his time outside of normal work hours when it comes to increasing awareness about land surveying. He is an advocate of introducing youth to the profession and has mentored two younger professionals that are now licensed land surveyors in Kansas and Missouri. He has devoted countless hours to advocate for legislation regarding the profession, has taught surveying courses as an adjunct professor at Longview Metropolitan Community College in Kansas City, and has mentored high school students at the Blue Valley Center for Advanced Professional Studies. Anyone who knows him would agree that he lives by his core values of – balance, collaboration, excellence, servant leadership and trustworthiness. He has set an example for all of us, both professionally and personally.

Outside of work he loves spending time with the family, especially his grandchildren, and is an avid lover of Kansas City Sports. His son may have summed it up best when he said, "My dad is the strongest and hardest working person I have ever seen in my life. He is an All-Star superdad, grandfather and husband who will never fail anybody." For his dedication to land surveying and MSPS, the 2014 Surveyor of the Year is our current MSPS President, Mr. Robert Ubben.

SHARON HERMAN **ROBERT E. MYERS SERVICE AWARD**

The Robert E. Myers Service Award is presented each year to a member of MSPS, who has shown exemplary service and dedication to the surveying profession and to the organization throughout their career. This year's recipient is a very deserving individual who holds her career as a land surveyor in high regards and has persevered to reach the top of her profession. The recipient of this award graduated with an Associate's Degree



of Applied Science in drafting and construction technology at Jefferson College in Hillsboro, Missouri in 1990. She began her professional career 23 years ago as a drafter at Govero Land Services in Imperial, Missouri. She went on to earn her LSIT and became a Missouri Land Surveyor in 2004. She became a fixture on the MSPS Executive Board in 2006. On October 12th, 2012, she became the first female in the history of MSPS to hold the office of President. Recently, in 2014, she retired as the survey manager for Govero, but continues to work on an as-needed basis.

The honoree of this award has always taken her job and professional career seriously, both in the office working on specific survey jobs, as well as in the community promoting the surveying profession. One of her first committee jobs for MSPS was customer relations, which involved selling t-shirts, ball caps and other promotional items at annual meetings. She once commented that selling was more fun than hauling, unpacking and repacking these items at conferences! She regularly attends annual MSPS meetings and has traveled to Jefferson City to meet with Missouri legislators on survey related matters. As MSPS President, she has traveled to Kentucky and Tennessee to attend their annual professional surveying meetings, where she attended both educational sessions and networked with key members of their organizations. One of her recent accomplishments was being a part of the hugely successful Survey Party in May 2014 at the Arch in St Louis as part of the City's 250th year anniversary. She worked long hours on the plat research, helped make colorful ribbons, and was there to participate in the event.

The recipient of this award is just as active and dedicated to the people in her personal life as she is to the surveying profession. Her husband has described her as an amateur travel agent who loves to travel to warm climates, and yes, when she sees a round metal survey marker, she usually takes a picture and finds the story behind it! She loves spending time with her grandchildren, working in the garden, volunteering her time at church and Cardinals baseball. Her adventurous spirit, love of life and passion for land surveying has brought her full circle to where we are today. Because of her exemplary service and dedication to the profession of surveying, this year's Robert E. Myers Service Award recipient, is Professional Land Surveyor, Sharon Herman.

JOHN HOLLECK LIFETIME ACHIEVEMENT AWARD

This year, the Society of Professional Land Surveyors would like to honor one of our most distinguished members with a Lifetime Achievement award for his contributions to the MSPS organization and to the profession of land surveying throughout his career. The recipient of this award served on the Board of MSPS from 1989 to 1996, and was President for the 1995-1996 year, during which time he re-wrote the 5th edition of the MSPS Handbook. One of his most notable contributions to MSPS however, was his serving as Editor of *The Missouri Surveyor*. He held the title of Editor for 17 years and produced 70 issues of the newsletter before retiring in 2013. This person was dedicated to providing Missouri Surveyors with an outstanding publication that won a national award for "Excellence in Journalism" from the National Society of Professional Surveyors.



The gentleman we are honoring with this award was instrumental in kicking off the land survey program in the late 1980's at Longview Metropolitan Community College in Kansas City, where he served as an instructor for more than 10 years. His full-time career was spent as a Land Surveyor for the Public Works Department of for City of Kansas City, Missouri. This person's tenure as a land surveyor and years of service with MSPS truly represents what this award is all about – a lifetime of achievement. Please join me in congratulating Mr. John Holleck. 🇺🇸

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“The Initial Point to the 5th Principal Meridian”

by Dr. Richard L. Elgin, PS, PE, Archer Elgin Surveying and Engineering, Inc., Rolla, MO

November 10, 2015 is an important date to nearly every American who owns land in the states of Arkansas, Missouri, Iowa, North Dakota and in parts of Minnesota and South Dakota. Every surveyor in those states should stop for a moment, and with head bowed, remember every GLO Deputy Surveyor who surveyed on the U.S. Public Land Survey System (USPLSS). Why November 10, 2015? Because that will be 200 years to the day, the Bicentennial, of the establishment of the Initial Point for the 5th Principal Meridian. That initial point is “zero, zero,” the point to which practically all titles to the lands listed in the states above are referenced. More land in the United States is referenced to this point, in a swamp in eastern Arkansas, than any other Initial Point. From that point the township and range numbering systems begins for those states. It ends at the northwest corner of North Dakota, in Township 164 North, Range 103 West. See Figure 1.



FIGURE 1
Lands Referenced to the Initial Point of the 5th Principal Meridian
Taken from “Initial Points of the Rectangular Survey System”
by Albert White (1996)

1785-1815

The genesis of our USPLSS can be traced back to the Land Ordinance of May 20, 1785. The system’s first experiment was in the Seven Ranges of southeastern Ohio, then spread westerly being modified and improved into the Northwest Territories and beyond. Under the system, each large segment of land requires a North-South Principal Meridian and an East-West Base Line, the intersection of these lines being the Initial Point. These Initial Points are the “zero, zero” for the USPLSS, from which township and range numbering begins. Yes, there are exceptions, but this is the general plan. As the USPLSS expanded westward, the location of meridians were decided, as were their Initial Points. Some were numbered, others were named. The First Principal Meridian (PM) is the Indiana-Ohio Border, the Second is in Central Indiana, the Third through central Illinois, the Louisiana in Central Louisiana, the Huntsville in Northern Alabama. Today the system framework is complete. There are 37 Initial Points.

With the 1803 Louisiana Purchase America acquired some 830,000 square miles of public land, doubling the size of our country. (The boundaries ill-defined and not surveyed of course. Sound familiar?) With the War of 1812 (June, 1812 until February, 1815) war veterans were pressuring the government to provide the promised land grants in payment for their service. The government (which was broke, sound familiar?) looked to the public lands as a means of providing military bounties, but the lands had to be surveyed and platted and title to the Native Americans extinguished before it could be granted. The Act of May 6, 1812, 2 Stat. 728, addressed this problem and states:

That the President of the United States be, and he is hereby authorized to cause to be surveyed a quantity of the public lands of the United States, fit for cultivation, not otherwise appropriated, and to which Indian title is extinguished, not to exceed six millions of acres, two millions to be surveyed in the territory of Michigan, two millions in the Illinois territory, north of the Illinois River, and two millions in the territory of Louisiana, between the River St. Francis and the River Arkansas; the said lands to be divided into townships, and subdivided into sections and quarter sections, (each quarter section to contain, as near as possible, one hundred and sixty

acres) in the manner prescribed by law for surveying and subdividing the other public lands of the United States; the same price to be allowed for surveying as is fixed for surveying the other public lands in the same territory.

The wording in this act calling for the St. Francis and Arkansas Rivers no doubt influenced the locations of the Fifth Principal Meridian (5th P.M.) and the corresponding base line, the surveys for which commenced in late 1815.

Establishing the Initial Point

On July 26, 1815, GLO Surveyor General Edward Tiffin wrote William Rector, the Principal Deputy Surveyor (in St. Louis), directing him to survey two million acres of land between the St. Francis and Arkansas Rivers:

...let a standard line [Principal Meridian] be accurately run from the confluence of the Arkansas with the Mississippi due north according to the true meridian so far, that a base line run due west from the mouth of the River St. Francis to the Mississippi will intersect it....

Thus the instructions were issued for the establishment of the location of the Initial Point for the 5th Principal Meridian. Little did Surveyor General Edward Tiffin know this arbitrary instruction of establishing one of the most important points of the nation's entire USPLSS would land in a swamp in eastern Arkansas.

On October 9, 1815, Principal Deputy Surveyor William Rector contracted with Prospect K. Robbins, as a deputy surveyor, to survey the 5th P.M. and with Joseph C. Brown, as a deputy surveyor, to survey the base line. Both Robbins and Brown were from the St. Louis area. In October, 1815 Robbins and Brown likely came by boat down the Mississippi River. Per their notes, on October 27, Brown commenced surveying the base line west from the mouth of the St. Francis River. On the same day, Robbins commenced surveying the 5th P.M. north from the mouth of the Arkansas River. Since the Initial Point was yet to be established at the intersection of these two lines, and since all townships were to be referenced to this point, both surveyors set temporary mile posts on their lines. These lines would later have to be resurveyed, south for the 5th P.M. and east for the base line, setting section and quarter corners, all referenced to the Initial Point, back to the rivers' mouths. Not knowing where the Initial Point was to be located, but assuming (correctly as it turned out) that the base line distance to this intersection would be less than the principal meridian distance, Brown reached

the yet to be located point on November 2 and continued some 13 miles to the west. Robbins intersected Brown's base line survey on November 10 at a distance of 57 miles 60.50 chains north from the mouth of the Arkansas River and 26 miles 30 chains west from the mouth of the St. Francis River. His notes state that he set the following:

...a Post corner of Sects 1, 6, 31 & 36 & Townships 1 & 1 N of Ranges 1 E & 1 W from which a Gum 18 in dia bears N61E dist 44 lks & a do 18 in dia brs S70W dist 10 L.

This location, the Initial Point for the 5th P.M. was in the middle of a cypress swamp. What a historic event and place! All land parcels in Arkansas, Missouri, Iowa, North Dakota, and parts of South Dakota and Minnesota are referenced by township and range to this point. It references more land area than any other Initial Point in the USPLSS.

According to the notes, a few days later Brown returned to the now-monumented Initial Point and probably met with Robbins. On November 16 (some accounts incorrectly give December 6), Robbins continued surveying the 5th P.M. north setting posts and calling for two bearing trees at the standard section and standard quarter section corners. He continued the meridian north into what is today Missouri, and on until he reached the Missouri River on December 28 (west of St. Louis and just downstream from the present day town of Washington, Missouri). Robbins had surveyed 317 miles 35 chains from the mouth of the Arkansas River in 63 days. Counting from the Initial Point, he had surveyed 259 miles at the rate of about 6.2 miles per day. (The 5th P.M. has its errors, but lets leave that discussion to another article.)

On November 25 Brown surveyed from the Initial Point west on the base line setting posts and calling for two bearing trees at the standard section and standard quarter section corners until he reached the Arkansas River on December 5 (near present day Little Rock). Other than setting temporary mile posts from the St. Francis to the Initial Point, this is the only portion of the base line surveyed by Brown. On November 26, Charles Lockhart, who had come down from St. Louis, surveyed the base line back east from the Initial Point reaching the St. Francis on December 4. On December 2, another deputy surveyor, Thomas Cox, began his survey from the Initial Point south, back down the 5th P.M. to the mouth of Arkansas River,

(continued on next page)

“The Initial Point to the 5th Principal Meridian” (continued)

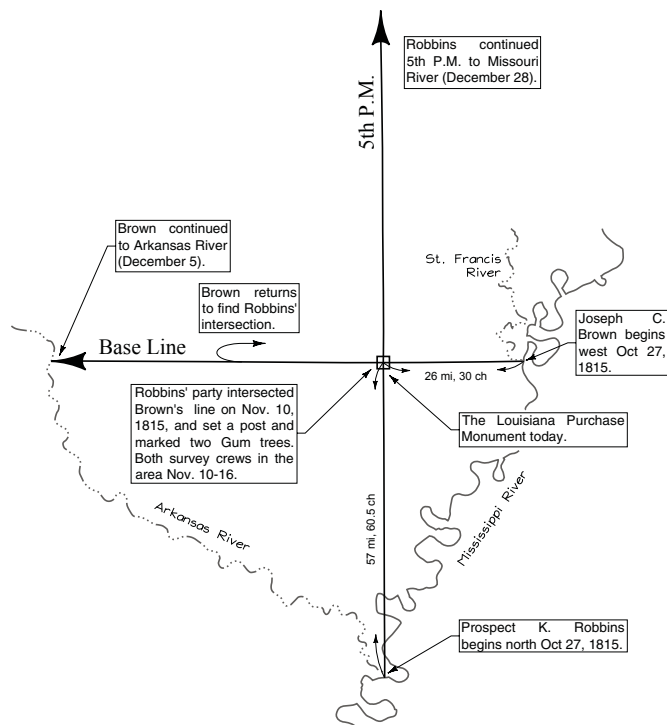


FIGURE 2
Establishment of the Initial Point
of the 5th Principal Meridian
November 10, 1815

**THE LOUISIANA PURCHASE
WERE SURVEYED BY UNITED
STATES ENGINEERS, THE FIRST
SURVEY FROM THIS POINT WAS
MADE TO SATISFY THE CLAIMS
OF SOLDIERS OF THE WAR OF
1812 WITH LAND BOUNTIES.
ERECTED BY THE DAUGHTERS
OF THE AMERICAN REVOLUTION
SPONSORED BY THE L'ANGUILLE
CHAPTER**

It is somewhat disappointing that the term “engineers” was used rather than “surveyors;” however, surveyors owe this organization a debt of gratitude for preserving such an important survey point.

In October, 1945 the General Land Office had surveyors Oscar Walsh and Hugh Crawford determine, by traversing from established control, the geographic location of the monument. They determined the coordinates to be: Latitude 34° 38' 44.728" N and Longitude 91° 03' 06.847" W. The modern GPS-derived position (NGS, 1999) for the Initial Point is Latitude 34° 38' 44.455" N and Longitude 91° 03' 07.337" W.

Neglected for many years, in the early 1970's the monument and the area around it was again remembered and efforts were made to preserve the site as a park. According to a 1980 account of the June 25, 1972 rededication of the monument by the dean of Arkansas

setting a monument every 40 chains. Thus began the first surveys of the USPLSS west of the Mississippi River. See Figure 2.

Since 1815

The Initial Point lay somewhat dormant and forgotten until 1921 when two surveyors, Tom Jacks and Eldridge Douglas from nearby Helena, Arkansas were hired to locate the point (which is the corner point to three counties). They claim to have found the original bearing trees (two Tupelo Gum trees) standing in a swamp and marked by Robbins some 106 years earlier. This created interest in the historical point that had been unoccupied for over 100 years, and the L'Aguille Chapter of the Daughters of the American Revolution placed a granite monument at what they termed “The Louisiana Purchase Monument.” See Figure 3. It was dedicated October 27, 1926. On the face of the monument is inscribed:

**THIS STONE MARKS THE BASE
ESTABLISHED NOV. 10, 1815
FROM WHICH THE LANDS OF**



FIGURE 3
Monument marking the Initial Point of the 5th Principal Meridian
(Photo provided by the Arkansas Society of Professional Surveyors)

boundary surveying, the late Larry Young (who was there), speakers at the ceremony included Governor Dale Bumpers; Clark Gumm, Chief of Cadastral Surveys, BLM; representatives of France, Spain and Great Britain, being Benoit d'Abbeville, Juan Cabrero and Archie Rendall, respectively. Dr. Lily Peter, Arkansas Poet Laureate recited a poem and singer-songwriter Jimmy Driftwood sang "*Liquidambar Styraciflus, Sweet Gum Tree.*" (At the November 10, 2015 bicentennial ceremony, the organizers will have to "pull out all the stops" to beat that lineup! Perhaps someone will sing Driftwood's "*Liquidambar Styraciflus,*" I'd like to hear it.)

Today the location is in the Louisiana Purchase State Park and has a boardwalk through the swamp so visitors can view this historic location. The Initial Point monument was designated a National Historic Landmark in 1993.

The Surveyors

The Base Line, Deputy Surveyor Joseph C. Brown (1784 - 1849)

Joseph Cromwell Brown enjoyed a full and notable career as a surveyor. Born January 29, 1784 in Prince Edward County, Virginia, he arrived in St. Louis sometime during the War of 1812. His first notable survey was as deputy surveyor, surveying the 5th P.M.'s base line in late 1815. From August until October, 1816 Brown surveyed the west line of the "Treaty of Fort Clark" signed in 1808 in which the Osage Indians ceded all land east of Ft. Clark (which became Ft. Osage and is today near Sibley, Missouri on the Missouri River) and north of the Arkansas River. Brown surveyed the meridian from Ft. Clark south to the Arkansas River near what is today Ft. Smith. In the early 1820's Brown was in St. Louis where he surveyed and platted tracts and filed a "Survey of the Incorporated Limits of St. Louis." Missouri became a state in 1821, its boundaries described in an act of Congress, authorizing the admittance of Missouri into the Union. In 1823 Brown surveyed the west and south boundaries of the new state, beginning at the mouth of the Kansas River where it flows into the Missouri River (downtown Kansas City, today) and surveyed a "true" meridian south to the 36° 30' latitude line. Then he turned east and surveyed that parallel of latitude to the St. Francis River. In 1824 he returned to southeast Missouri to survey the south line of Missouri's "bootheel," surveying the 36° 00' line of latitude between the St. Francis and Mississippi Rivers.

In 1825 Brown surveyed the lots, streets and public places in Ste. Genevieve. In 1825-1826 he surveyed the Santa Fe Trail, being chosen as "preferred to all his competitors without a moment's hesitation, as being in the opinion of

the Commissioners best qualified in all respects." At the time of his selection for this important task Brown was a member of the Missouri Legislature. In the mid-1830's Brown surveyed and platted hundreds of lots and tracts in St. Louis.

In 1816 Deputy Surveyor John Sullivan surveyed the "Indian Boundary," part of which became the Missouri and Iowa boundary. There was continued controversy over the line, but in 1837 Joseph C. Brown was called upon to resurvey Sullivan's line. In 1849 the U.S. Supreme Court rejected Brown's location (and others) and decreed Sullivan's 1816 line to be the state boundary. The Court ordered the line be resurveyed and Brown was appointed one of the surveyors. He died February 21, 1849 before the resurvey began. His obituary reads:

...an honest man and competent surveyor, he has no superior, if equal. His superior capacity caused nearly all important and complicated Government surveys to be confided to him.

Brown was buried in the Moline Church Cemetery (St. Louis), but in 1875 his remains were reinterred in Bellefontaine Cemetery in St. Louis.

The Principal Meridian, Deputy Surveyor Prospect K. Robbins (1788 - 1847)

Prospect K. Robbins was born in Pittsfield, Massachusetts in 1788 and migrated to Monroe, Lincoln County, Missouri in 1810. He would live in the Lincoln County and St. Charles area for the next two decades. An educated man, he assumed roles in government and commerce. During the War of 1812 he served as an officer under Captain Nathan Boone (Daniel Boone's son) and Captain James Callaway. During the War, the future Surveyor General for the Missouri Territory, William Rector was a Brigadier General, serving in Illinois. No doubt Robbins and Rector knew each other through their military service during the War. In late 1815 he surveyed the 5th Principal Meridian with brothers John and Alexander Baldrige and Hiram Scott. The four had served together in the St. Charles district militias during the war. Six months after completing the 5th Principal Meridian, Robbins married Elizabeth Evans in St. Charles. For the next 10 years he was a GLO deputy surveyor and taught school in St. Charles and in Lincoln County. During this period he joined local leaders as signatory to a petition to incorporate the Town of St. Charles (1817), served as a Justice of the Peace in Monroe Township, was an overseer of roads, and served on its first grand jury. In 1821 he received a

(continued on next page)

“The Initial Point to the 5th Principal Meridian” (continued)

promotion to Brigadier General in the state militia and he was appointed St. Charles County Surveyor.

After about two decades in Lincoln and St. Charles Counties, at about forty years of age and presumably a widower, he and one of his sons, Jesse moved to Ste. Genevieve, Missouri. In 1834 Robbins married Harriet Neil. In May, 1847, the month before he died, he was baptized in the local Catholic Church. According to the burial records of the Memorial Cemetery in Ste. Genevieve, Prospect K. Robbins was buried in the cemetery in June, 1847. In an inventory of his estate, no surveying equipment is listed. Although members of the Missouri Association of County Surveyors have made a search of Memorial Cemetery, no headstone for Robbins has been located.

November 15, 2015

Tuesday, November 10, 2015 will be 200 years to the day of the establishment of the Initial Point. Both the

Arkansas Society of Professional Surveyors (ASPS) and the Missouri Society of Professional Surveyors (MSPS) are planning events to commemorate both the Initial Point and the 5th P.M. Watch their websites for announcements and information.

Dick Elgin is a surveyor, author and educator. He wrote the book *“The U.S. Public Land Survey System for Missouri.”* With David Knowles, they wrote the “companion book” for Arkansas, and *“Legal Principles for Boundary Location for Arkansas.”* Dick is a past president of MSPS and a past member of the Missouri Registration Board. If you would like to meet him, be at the 5th PM Initial Point on November 10, 2015. Dick says he’ll buy anyone a beer who will sing Driftwood’s *“Liquidambar Styraciflus”* at the I.P. that day. 🇺🇸

Rep. Yoder addresses NSPS Board of Governors in Kansas

Rep. Kevin Yoder (R-KS), a member of the House Appropriations Committee, addressed the leadership of NSPS and members of the Kansas and Missouri surveying societies in a speech during the NSPS Fall Meeting in Overland Park, Kansas on October 23. Members of the NSPS Board of Directors, Board of Governors, committee chairs and others heard the Congressman discuss his efforts to protect GPS users from signal interference by LightSquared, job creation through training and education in science technology, engineering and mathematics (STEM), and reform of the Federal Government through elimination of wasteful spending, including the need for a current, accurate inventory, or cadaster, of land and buildings owned by the Federal agencies. Yoder said the government does not know how many parking garages, golf courses or hotels it owns, and called for an inventory to put unneeded federal real property to its best and highest use to generate economic activity and create jobs. He said as a member of Congress he cannot be told what property the government owns in his district and noted the important role for surveyors in land information activities. 🇺🇸





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MSPS Online Learning Portal Update

Need to accumulate some continuing education before year's end? Two courses by Mike Flowers on Missouri Minimum Standards have been added to the catalog at the MSPS online portal.

In mid-October, MSPS launched two online courses; each carries one PDU on Missouri Minimum Standards topics, and has been formally approved by the Missouri Licensing Board to meet their requirements.

The first course covers

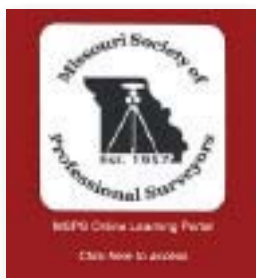
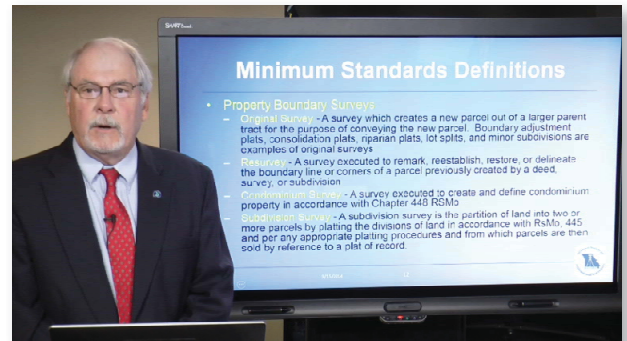
- History of the Standards
- The purpose and application of the Standards
- Definitions
- General land surveying requirements for original surveys, resurveys and subdivision surveys

The second course covers

- Approved (and non-approved) monumentation
- Accuracy standards for property boundary surveys
- Detail requirements for original surveys, resurveys or subdivision surveys
- Detail requirements for condominium surveys
- Location of improvements and easements
- Use of the Missouri Coordinate System of 1983.

It concludes with discussion of a suggested checklist that the course taker may create and use to help review all work done that is intended to be in compliance with the Missouri Standards.

The online interface is easy to use, affordable and provides a tool to inventory all course work taken through the portal for easily tracking continuing education credits earned. This is a modern way to get a quality service and course content that is specifically addressed to Missouri-licensed land surveyors. The coursework is available with no delay once a person is signed up for the presentation they select. There is also the convenience of being able to enter the portal and get continuing education credits anytime, at anyplace.



To access the portal, click on the “badge” on the MSPS website (www.missourisurveyor.org) illustrated here. When on the online portal landing page, click on **[Click Here To Access Online Learning Portal](#)** to take you to the portal. If you haven’t logged on before, you will need to register as a user (two minutes). Then, click on “Start Searching Now” near the upper right and you can browse the catalog, select your course, pay for it with credit card and you have up to a year to finish the course. Note that there is a final exam with each course. However this is **OPTIONAL**. It is provided so that if you want to challenge yourself, you can take it. Note you have to choose to either “self-certify,” that is, no exam, or select “exam.” Once selected, you cannot go back. You have three attempts to pass the exam (70% is the passing grade).

MSPS will provide more options to its members who seek continuing education opportunities. By accessing the online learning portal through the MSPS website, professional land surveyors and their staff can conveniently improve or refresh their knowledge base of land surveying practices relevant to Missouri.

Don’t forget, there’s a free course on the portal, taught by Tom Bryant of Seiler Instrument on how to access and use the MO DOT Real Time Network. Check it out!

Any questions? Please contact msps@MissouriSurveyor.org. Or contact portal provider GeoLearn at info@geo-learn.com.

Remember that in Missouri you can present for renewal of licensure no more than 60% of the required continuing education from online or similar types of non-face-to-face education. 🇺🇸



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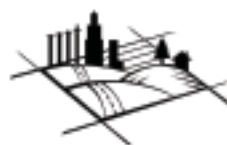


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News from the National Geodetic Survey



Tuesday, August 12, 2014

NGS Announces Joint Release of GEOCON v1.0 and GEOCON11 v1.0

NGS is pleased to release two related products: **GEOCON v1.0** and **GEOCON11 v1.0**. Each product transforms coordinates between specific realizations of the North American Datum of 1983 (NAD 83).

GEOCON v1.0 allows users to transform latitudes, longitudes, and ellipsoid heights between NAD 83("HARN") and NAD 83(NSRS2007). (NAD 83["HARN"] is an abbreviation for "the most recent pre-NSRS2007 realization of NAD 83 at any given point.") GEOCON also issues information about the quality of the transformation at each point and notifies users in the event of poor quality results.

GEOCON11 v1.0 performs a similar task as GEOCON, but it transforms coordinates between NAD 83(NSRS2007) and NAD 83(2011). Similar to GEOCON, GEOCON11 issues information regarding the quality of the transformations to users.

You may find more information about **GEOCON v1.0** and **GEOCON 11 v1.0**, including operator and user guides, technical reports, and download instructions on the NGS website at: <http://www.ngs.noaa.gov/GEOCON/>. Information on **GEOCON11 v1.0** can be found at the above link or at: <http://www.ngs.noaa.gov/GEOCON11/>.

Thursday, October 30, 2014

200 Million CORS Data Files Served

Users of the NGS-managed Continuously Operating Reference Station (CORS) network passed a notable milestone at the end of October, downloading the 200 millionth GPS data file from the network. These data enable users to determine centimeter-level positions consistent to the National Spatial Reference System—the coordinate system that defines latitude, longitude, height, scale, gravity, and orientation for the nation. Via the CORS network, users are able to simultaneously process their own GPS data with data from the network to support three-dimensional positioning, meteorology, space weather, and geophysical applications.

Thursday, November 06, 2014

NGS Completes Topo-bathy Project in St. Croix

On October 28, NGS completed a three-week project in St. Croix, U.S. Virgin Islands. Airborne topographic-bathymetric ("topo-bathy") light detection and ranging (lidar) data and imagery of the shoreline were collected using the NOAA Twin Otter aircraft. This survey supports data requirements for two offices of NOAA's National Ocean Service: the Office of Coast Survey and the National Centers for Coastal Ocean Science. Survey data will be used to help update charted depths acquired via single beam sonar in 1980 for most of the island.

Thursday, November 13, 2014

NGS Assists the U.S. Coast Guard to Provide Safe Navigation

At the request of the U.S. Coast Guard (USCG), the National Geodetic Survey (NGS) established two GPS Verification Markers at the USCG STANT facility in Burlington, Vermont. The acronym "STANT" is derived from a combination of a Search and Rescue Station (STA) and Aids to Navigation Team (ANT). Global Navigation Satellite System data were collected on each survey mark and uploaded to the NGS [Online Positioning User Service](#) (OPUS). The OPUS solutions for these marks were provided to the STANT and will be shared free of charge on the NGS website for use by the public. The work is critical for the USCG to establish and position aids to navigation and to conduct search and rescue operations. 🇺🇸

The 'other part' of the Mason-Dixon Line

by Erika Quesenbery-Sturgill (equesenbury@avenuenews.com), From The Cecil Whig, www.cecildaily.com, Nov. 15, 2014

CECIL COUNTY — Writer after writer and most every history book covering the Civil War period confirms that the Mason-Dixon Line is the dividing line between north and south.

It is the demarcation of the oft-disputed boundary between Pennsylvania to the north and Maryland to the south. Cecil Countians cross the Mason-Dixon Line with nary a thought to the border, and many countians, including Tina Durborow, of Cecil College, can even boast a stone marker of the famous line on their family property.

All of the land boundaries of Cecil County bordering Pennsylvania on the north and Delaware on the east are lines surveyed by Charles Mason and Jeremiah Dixon, the men behind the famous Mason-Dixon Line. Mason and Dixon were English astronomers and mathematicians, who were under a commission from Frederick, the last Lord Baltimore, and Thomas and Richard Penn, the surviving sons of William Penn. They were hired to define the boundary between Pennsylvania and Maryland once and for all.

Mason and Dixon labored at their task between 1763 and 1767, and were able to finally settle the more than 80-year-old dispute between Pennsylvania and Maryland. Their labor did not just draw the east-to-west line that defines the border between north and south, however, but also runs north to south to define the east and west boundary down the Delmarva Peninsula. The Delmarva portion of the line was one of the earliest boundaries Mason and Dixon drew, doing so in the fall of 1764. Indeed, it was on Nov. 15, 1763, that Mason and Dixon began work on the famous line.

Therefore the line we traditionally see as the demarcation for two states — Pennsylvania and Maryland — is of course the demarcation line of four states — Pennsylvania, Maryland, Delaware and heading west for Virginia, which of course is now West Virginia. In 1779, Pennsylvania and Virginia agreed to extend the Mason-Dixon Line due west to designate the southern boundary of Pennsylvania.

The Mason-Dixon Line is marked by stones every mile and “Crownstones” every five miles. These stones were shipped from England with the Maryland side reading “M” and the Delaware and Pennsylvania sides reading “P.” Crownstones included the two coat of arms — Penn and Calvert. Many of these stones have gone missing, or were

(continued on next page)



Delaware Gov. Elbert Carvel, U.S. President John F. Kennedy and Maryland Gov. J. Millard Tawes cut the ribbon at the dedication of the then Northeastern Expressway at the Mason-Dixon Line. The Mason-Dixon survey helped end an 80-year-old dispute between the governors of Maryland and Pennsylvania, as well as developed boundaries for Delaware and West Virginia.



The markers each have an “M” on their southern sides and a “P” on the northern side, to mark the Maryland and Pennsylvania sides of the Mason-Dixon line.

The 'other part' of the Mason-Dixon Line (continued)

buried for safe keeping, while others are still visible often in protective cages.

The Mason-Dixon Line consists of four distinct parts — the tangent line, the north line, the arc line and the 39-degree 43rd parallel. The most difficult of all of these was fixing the tangent line at Delaware. Once this was done, Mason and Dixon could survey the north and arc lines, but in the end this left a small wedge of land in dispute between Delaware and Pennsylvania until 1921, even though history tells us all disputes ended with the Mason-Dixon Line.

In fact, the line was resurveyed in 1849, 1900 and again in the 1960s — for the line's bicentennial. On Nov. 14, 1963, President John F. Kennedy opened a newly completed section of Interstate 95 where it crossed the Maryland-Delaware border and the Mason-Dixon Line — his last public appearance before his assassination in Dallas.

Locally, the Mason-Dixon Line continues to be a significant part of nomenclature with the Rising Sun American Legion Post #194 known as the Mason-Dixon Post, among other reminders of the famous line. Even the town logo features one of the demarcation stones. The two men behind the line continue to be remembered to this day, as well. Charles Mason, who died Oct. 26, 1786, in Philadelphia can be recalled each time one looks at the moon, as crater "Mason" was named in his honor. Further, one displaced Mason-Dixon Line stone was used to mark his previously unmarked grave in a ceremony that occurred as recently as Aug. 31, 2013.

As far as James Dixon's memory, there are many historians who theorize that it was his name behind the catchy Civil War ditty "Dixie" and the term for designation of America's southern states. Dixon died in back in England in 1779 and was buried in a Quaker cemetery there, despite having been a less than stellar example of Quakerism — he was known to wear a long red coat and sometimes drink excessively. That hasn't tarnished his legend, however, for as recently as last year, the Bowes Museum, housed in Barnard Castle in England, mounted the exhibit "Jeremiah Dixon: Scientist, Surveyor and Stargazer" for a very popular six-month run. 🇺🇸



Over the years acts of vandalism and souvenir seekers have caused extensive damage, and even theft, to some of the Mason Dixon Line markers prompting many to be protected in some form or another including enclosures — like this one seen in West Virginia.

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Last of the Crow War Chiefs turns 101 in Montana Doctor, Surveyor, Indian Chief

Dr. Joseph Medicine Crow celebrated his 101st on October 27, 2014. Prior to his birthday anniversary he wrote to friend that “On Oct. 27, I will have seen 101 snows.” He celebrated the day with a lunch of fry bread and pie at a log-cabin trading post at the edge of the Little Bighorn Battlefield.

An honored veteran of World War II, High Bird (his traditional Crow name) served with the 103rd Infantry Division. He once raided a farmhouse corral held by German forces during an offensive along the German Siegfried Line. Making off with German horses he left the Nazis without their steeds for escape. As he rode away on horseback he spontaneously broke into a Crow praise song.



After the war he started ranching as he and his wife raised a family of three children. He also worked for three decades as a **land surveyor** for the Bureau of Indian Affairs. Surveyor Medicine Crow is a tribal historian, storyteller, decorated World War II veteran, first in his tribe to attain a master’s degree, last to achieve the status of traditional Crow war chief and recipient of the Presidential Medal of Freedom. 🇺🇸

This story excerpted from a report by Mary Hudetz, america.aljazeera.com, October 27, 2014.

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Bader Land Surveying, Inc.	16255 Sugar Bottom Road	Ste. Genevieve, MO 63670-8613	573-483-2777	baderls@brick.net	
Bartlett & West, Inc.	1719 Southridge Drive, Ste. 100	Jefferson City, MO 65109	573-634-3181		www.bartwest.com
Bax Engineering Co., Inc.	221 Point West Blvd.	St. Charles, MO 63301	636-928-5552	dbax@baxengineering.com	www.baxengineering.com
Bowen Engineering & Surveying, Inc.	2121 Megan Drive	Cape Girardeau, MO 63701	573-339-5900	info@bowenengsurv.com	www.bowenengsurv.com
Buescher Frankenberg Associates, Inc.	103 Elm St.	Washington, MO 63090	636-239-4751	mail@bfaeng.com	www.bfaeng.com
Burdine & Associates, Inc.	1638 Jeffco Blvd.	Arnold, MO 63010	636-282-1600		
Cardinal Surveying & Mapping, Inc.	PO Box 278	Cottleville, MO 63338	636-922-1001	shelly@cardinalsurveying.com	www.cardinalsurveying.com
Central MO Professional Services, Inc	2500 E. McCarty	Jefferson City, MO 65101	573-634-3455	kbrickey@cmps-inc.com	www.cmps-inc.com
Cochran	530 A E. Independence Dr.	Union, MO 63084	636-584-0540	mail@cochraneng.com	www.cochraneng.com
Cole & Associates, Inc.	401 S. 18th St, Ste. 200	St. Louis, MO 63103	314-984-9887	twesterman@colestl.com	www.colestl.com
Doering Engineering, Inc.	5030 Griffin Road	St. Louis, MO 63128	314-487-6913	mdoering@doeringeng.com	www.doeringengineering.com
Engineering Solutions	50 SE 30th Street	Lee's Summit, MO 64082	816-623-9888	esinfo@es-ck.com	www.engineeringsolutionsck.com
Frontenac Engineering Group, Inc.	2725 Sutton Blvd. B	St. Louis, MO 63143	314-644-2200	billb@fe-stl.com	www.fe-stl.com
George Butler Associates, Inc.	9801 Renner Blvd.	Lenexa, KS 66219-9745	913-492-0400		www.gbateam.com
Govero Land Services, Inc.	5929 Old State Rd.	Imperial, MO 63052	636-464-9380	glsland@goverolandservices.net	www.goverolandservices.com
Grimes Consulting Inc.	12300 Old Tesson Road, Ste. 300 D	St. Louis, MO 63128	314-849-6100		www.grimesconsulting.com
Harms, Inc.	PO Box 52	Eldon, MO 65026	573-392-3312	jharms@harmsinc.com	
Hood-Rich, Inc.	801 S. Glenstone	Springfield, MO 65802	417-862-4483	ddrumm@hoodrich.com	www.hoodrich.com
Integrity Engineering, Inc.	PO Box 700, 1714 E 10th Street	Rolla, MO 65402	573-341-2100	terris@integrityeng.com	www.integrityeng.com
John R.M. Nelson, Inc.	PO Box 482	Bolivar, MO 65613	417-326-2777	jnkn@yahoo.com	
Koehler Engineering & Land Surveying, Inc.	194 Coker Lane	Cape Girardeau, MO 63701	573-335-3026	ckoehler@koehlerengineering.com	www.koehlerengineering.com
Marler Surveying Co., Inc.	11402 Gravois Rd., Ste. 200	St. Louis, MO 63126	314-729-1001	marler@marlersurveying.net	www.marlersurveying.com
Midland Surveying, Inc.	501 N. Market	Maryville, MO 64468	660-582-8633	tryhayes@midlandsurvey.com	www.midlandsurvey.com
Migar Enterprises, Inc.	PO Box 528	Grandview, MO 64030	816-966-0839		
Minnick Surveying, LLC	7905 Big Bend Blvd., Ste. 101	Webster Groves, MO 63119	314-721-9500	info@minnicksurveying.com	www.minnicksurveying.com
Musler Engineering Co.	32 Portwest Court	St. Charles, MO 63303	636-916-0444	6rich@muslereng.com	www.muslereng.com
Olsson Associates	7301 W. 133rd St., Ste. 200	Overland Park, KS 66213	913-381-1170	pward@oaconsulting.com	www.oaconsulting.com
Pellin Surveying LLC	208 South Church Street	Union, MO 63084	314-985-5263	pellinsurveying@gmail.com	www.pellinsurveying.com
Phoenix Engineering & Surveying, LLC	3855 S. Northern Blvd	Independence, MO 64052	816-743-9000	wes@phoenix-llc.com	www.phoenix-llc.com
Pickett, Ray & Silver, Inc	22 Richmond Center Court	St. Peters, MO 63376	636-397-1211	dkornia@prs3.com	www.prs3.com
Pitzman's Co. of Surveyors & Engineers	2725 Sutton Blvd.	St. Louis, MO 63143	314-781-5665		
Poeping, Stone, Bach & Associates, Inc.	801 Broadway, Ste. 224, PO Box 190	Hannibal, MO 63401	573-406-0541	psba@psba.com	www.psba.com
Riggs & Associates, Inc.	102 W. Trish Knight St., PO Box 71	West Plains, MO 65775	417-256-8125	ralphr@riggslandsurveying.com	www.riggslandsurveying.com
Robert S. Shotts, Inc.	267 East Third Street	Lebanon, MO 65536	417-588-7877	bob@shottinc.com	www.shottinc.com
Ruble Surveying, Co.	PO Box 367, 801 S. McArthur	Salem, MO 65560	573-729-8740	craig@rublesurveying.com	
Schlagel & Associates, PA	14920 W. 107th St.	Lenexa, KS 66215	913-492-5158		www.schlagelassociates.com
Schmitz, King & Associates, Inc.	18900 West 158th St., Ste. G	Olathe, KS 66062	913-397-6080	dave@schmitzking.com	www.schmitzking.com
Shafer, Kline & Warren, Inc.	1700 Swift Ave., Ste. 100	N. Kansas City, MO 64116-3821	816-756-0444	graham@skw-inc.com	www.skw-inc.com
Shaffer & Hines, Inc.	PO Box 493	Nixa, MO 65714	417-725-4663	chines@shafferhines.com	
St. Charles Engineering & Surveying, Inc.	801 S. Fifth St., Ste. 202	St. Charles, MO 63301	636-947-0607		www.stcharleseng.com
Surdex Corporation	520 Spirit of St. Louis Blvd.	Chesterfield, MO 63005	636-368-4400	brianh@surdex.com	www.surdex.com
Taliaferro & Browne, Inc.	1020 E. 8th St.	Kansas City, MO 64106	816-283-3456		www.tb-engr.com
The Sterling Company	5055 New Baumgartner Road	St. Louis, MO 63129	314-487-0440	ggower@sterling-eng-sur.com	www.sterling-eng-sur.com
Thouvenot, Wade & Moerchen, Inc.	4940 Old Collinsville Road	Swansea, IL 62226	618-624-4488	dtwente@twm-inc.com	www.twm-inc.com
Tri-State Engineering, Inc.	702 S. Main St.	Joplin, MO 64802	417-781-0643	slewis@tristate-engineering.com	www.tristate-engineering.com
West Wildwood Surveying, LLC	8023 Waddell Avenue	St. Louis, MO 63125	636-394-6090	wwsurv@att.net	
Whitehead Consultants Inc.	114 N. Main St.	Clinton, MO 64735	660-885-8311	mtaylor@wcieng.com	
Zahner & Associates, Inc.	26 N. Jackson St.	Perryville, MO 63775	573-547-1771	zahner@zahnerinc.com	www.zahnerinc.com



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