

The art of surveying: searching for indications of humanity

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Pine County Surveyor Robin Matthews and retired county surveyor MB Rude share some interesting and unexpected facts about the history of surveying in Pine County.

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One of the oldest professions in the world, shared by the likes of George Washington and Thomas Jefferson, has been taking place for almost two centuries in Pine County.

The practice of surveying has been beneficial to all who live or have lived in the county. Without knowing where the section corners are, people's property lines are in limbo. For surveyors, knowing where original

property corners are has been like an archeology dig and a bit like solving a mystery.

A big part of the county surveyors' job has been the process of section corner remonumentation – in other words to re-mark the boundary corners using original land surveys done in the 1850s and 1860s. The markings were originally done with wood posts so the task has not been an easy one as many of the markers have deteriorated.

But with the work of Pine County Surveyor Robin Mathews, retired county surveyor M.B. Rude and those who went before them, the department is getting closer to having all the original sections re-marked.

Mathews and Rude share some interesting and unexpected facts about the history of surveying in Pine County, along with what it's been like to dig into history while finding and replacing original markers.

Investigators/surveyors

Rude was the first contracted county surveyor in 1971 and retired in 2004, when Mathews took over. Rude learned skills as a flash ranger in the U.S. Army identifying artillery round locations using surveying math. He then went to the U of M to study surveying. Mathews earned his degree at the University of Wisconsin - Madison and then worked for the Bureau of Land Management for about 10 years before coming to Pine County.

The skills they learned with training and gathered while in the field, helped them map out Pine County. Surveying, they say, takes a bit of detective work to find the posts, using math, history and the skill of deduction.

The original markers are the hardest to find given their age and wood composition. Mathews estimates that about 30% of the time they went out searching with a backhoe, they would find the markers.

“The ones that survived were in the swamps because they didn't get any oxygen,” noted Rude. “A surveyor would find one ... once we found one, we would find two using some math.” He adds that many of the original posts had rotted or had a road built over them.

Indications of humanity

“We are charged to follow in the footsteps of the original surveyor,” Mathews explains. “Much of our job is to be in the mind of what was going on at that time, kind of like an archaeological dig using the records in the field notes.” He notes they will use the original field notes from the turn of the century.

Mathews explains that the surveyors before Rude may have replaced the wood post with a stone and carve an X in it. Then Rude (and Mathews) would replace the stone with some kind of iron post so it could be located with a magnetic locator.

Mathews says when they find an original section corner, it's a big deal. "It's very satisfying and is why we do what we do," he says. "When we're looking for a wood post or stone, we're looking for old indications of humanity, like barbed wire dated to that time period. We're looking for old fence lines or tree lines. The farmers knew where the markers were and built their fields close to the markers. A rock line in the middle of nowhere with glass or a firepit tells us humanity was there."

"The stone would have some type of marking like a cross or crows foot," adds Rude. "The idea was to tell the world that humanity has touched this."

Mathews described one marker hunt. "We were excavating east of Bruno where Buckley (a surveyor before Rude) had a record that he set a stone in the road," recalls Mathews. "We found the stone and there was a beer bottle next to the stone in tact by Purity Brewing Company. The date on the bottle was within two years of the Buckley records. The company only made those bottles for about six years. We found the date to be 1916."

85% there

Rude has remonumented about 1,300 of Pine County's 5,200 section corners, and Mathews has remonumented about 2,500. In sum, the pair has replaced about 85% of the total markers in the county, and Mathews is still working on the project.

"My numbers are higher (than Rude's) because MB was not fully funded," explains Mathews. He adds that the county board set a goal in 2004 to find all the markers and to hire full time county surveyor.

"Because every property is based on the section corners, the county board was getting pressure from landowners so they could be certain where their property corners were," adds Rude.

The original surveying records were all on paper, they explain. Now every corner that's marked has GPS coordinates. Rude was the pioneer in the county in using GPS coordinates. "I got approval in about 2002 from the county board to establish a county coordinate system by GPS," notes Rude.

Rude set about 250 control point markers in the county with GPS coordinates. "I can touch a control point marker and go to the section corner and put a coordinate on that section corner," Mathews says. "The physical markers of the section corners are the known network for the property in the county ... issues and errors go away when these section corners are established." He adds that surveyors are able to do their work on the highways using the same coordinates as well. "It is the foundation of all property rights and land uses in the county."

Most people don't understand the volume of research, field work and analysis that is required to determine where a section corner is found, notes Mathews. "We are giving people a document that is legally used in

court which is why it's so thorough," he adds.

When asked if anyone has gotten upset over their surveying determinations, Mathews says, "If people don't know where their section corners are, they assume. If they're not where they're supposed to be, in the minds of the property owners, they may be upset for a year or two but soon accept it after the surveying is done."

Rude recalled one time going out to a nearby lake, "I had to have the sheriff's office out with me because of a dispute between neighbors, with one neighbor not wanting a surveyor out on the property."

All surveyors are legally able to be on properties. Mathews gives advice that it's much easier to talk to a neighbor after a property is surveyed if there are property lines in question. "If you don't have the document, it's hard to convince a neighbor where the property lines are," he says.

Changes to the county's landscape

The pair has seen some changes over their tenure. Rude observes there has been a considerable amount of development around the lakes and in the "boondocks," along with the breaking up of forty-acre parcels into five-acre parcels.

Mathews observes that the history of Pine County is similar to the history of rural Minnesota and Wisconsin. After WWII men and families wanted to buy land to settle in the 1950s. He also notes the recessions and real estate booms in the 1990s having a big effect on the county. "In the last four years, we've had a big influx of people buying tracts of land out in the boondocks which is unusual; it used to be people buying plots of lake property. They're escaping urban insanity maybe," he quips.

A good profession

Surveying is a great profession to get into, according to Rude. "It's a very challenging and interesting career. You're solving mysteries all the time," he says.

"You're a problem solver and it's always a puzzle," adds Mathews. "Your duties and responsibilities are not one dimensional." Surveyors in Minnesota require a four-year degree in surveying or civil engineering to be licensed, he notes.

Mathews concludes by saying that all the work Rude did in the almost 30 years as Pine County surveyor has been a huge advantage for him and the county. "His work is reputable, consistent and accurate and made my job coming in much easier," he says. "We still use all his information today."