



THE American Surveyor

A FOOT IN THE PAST... AN EYE TO THE FUTURE

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Unintentional ~~DOUBLE~~ Monumentation

Surveyors have often disagreed over the true position of a section corner when the original government monument could not be found. Setting a new monument for a section corner where an original corner has become lost is common; however, surveyors have also unintentionally set double monuments when they have found the government corners.

>> By Jerry Penry, LS



Even after the leaves are cleared away, the top of the original government limestone is barely visible next to the witness pipe set by State Deputy Surveyor Harold B. Lawson in 1930. The pipe was added to aid in locating the stone, not to replace the position of the corner.



After tying out the location of the government limestone, the careful excavation of it and the witness pipe begins. The stone was lowered and a new monument was set over the top of the stone eliminating the double monument at this location.

This witness pipe mysteriously appeared sometime after 1966 to help mark the location of the red flint (quartzite) stone. Unfortunately some surveyors began using the pipe instead of the stone which is the true quarter section corner.

For most areas, posts or stones were set for the government monument. Surveyors doing resurveys in the late 1800's would generally replace lost or obliterated corners with the same material. As the twentieth century neared, surveyors began driving iron pipes or other ferrous material next to the monuments to aid in finding them. At first this seemed harmless and was even greatly appreciated with the advent of the dip needle and later the magnetic locator. Back then it seemed obvious that the stone was the true corner and the adjacent pipe was merely set as an aid to help locate it—or so it seemed. Times began to change when iron pipes and iron pins began to be used as the actual corner instead of a witness. The generation of surveyors who had grown up measuring from stones slowly turned to those who would know to measure only from iron pipes. Each new generation of surveyors brought the iron markers into everyday use until some surveyors had never even seen an original stone marker.

Unfortunately, those who had set many of the iron pipes next to the stones had not clearly stated that this was being done as a witness to the stone and not as a replacement. Many surveyors in the modern era began to eagerly accept the found iron pipes as the true corner when the original stone lay just inches below the surface. The situation then became one of double monumentation since the next surveyor would blindly follow the previous surveyor who had accepted the iron pipe as the corner.

The verbiage used at one time in history may seem perfectly clear to those working during that era, but be completely confusing to later generations. Consider the following statement made by Nebraska Deputy State Surveyor Harold B. Lawson during a resurvey in 1930.

Excavation revealed this stone to match the recorded dimensions of 1883, and it was also found to be exactly on line between the section corners.



The government 1/4 section corner between sections 3 and 10, [T&N, R6E] which is marked with a limestone in virgin sod. I rebuild this corner in its original position. I set an iron pipe and deposited a marked brick.

Lawson said he had found a limestone in virgin (unplowed) sod. This appeared to him to be the monument set by the government surveyors in 1857 since they recorded setting a limestone. No other records had indicated this monument to be anything other than the original monument. He next stated that he rebuilt the corner in its original position and set an iron pipe and a marked brick. His verbiage is not

clear since he did not clearly indicate whether the limestone continued to mark the original position or if the iron pipe now marked the original position. Upon examination of this corner in April of 2002, the pipe was found placed on the side with the top being about a tenth higher than the top of the stone. State application surveys usually have a preamble at the beginning of the notes that can often help determine what was done. Consider the following two paragraphs taken from the preamble for Lawson's survey:

Unless otherwise stated in the following field notes, 3/4-inch iron pipes, 26 inches long are used for corner markers and 5/8-inch iron rods, 26 inches long are used for witness corners.



The original field notes disclose that all corners in these townships were marked with stones described therein, with exception of the Second Standard parallel where the corners were marked with a post, charred stake and mound with pits. As search reveals evidence of the original survey, all such corners found are marked in their original position and lost corners are restored by proportional measurements based upon the original plat and field notes or



The distance between the top of this 5/8" rebar and the center of the stone was nearly a half foot. Although the rebar greatly aided in finding the stone in the middle of a cornfield, the surveyor's paint on the top of the rebar indicates it was probably being used as the corner position instead of the original stone.

resurveys made by Lancaster County Surveyor, which have been properly recorded.

These statements from the preamble might further add to the confusion since in the first paragraph he states he used 3/4-inch iron pipes for monuments, but in the second paragraph he says all corners found are restored in their original position. Being a deputy state surveyor, Lawson hopefully would have strictly adhered to the rule of never changing the position of a government corner. Unfortunately in the years to follow Lawson's survey, some surveyors have correctly used the limestone as the corner, while others have incorrectly used the iron pipe. At this particular location Lawson did not set any 5/8-inch witness ties, so they could not aid in the determination of the intended corner position.

It is often good practice to continue reading the surveyor's notes of the same area to see if he had revealed any additional information as to how he had monumented other corners he had found. In most cases where Lawson had found a government stone, he stated he had rebuilt it in its original location and set an iron pipe. These statements appear to all be for stones found at or near the ground surface. At one particular corner where the stone was not at the surface, his notes read a little differently:

The 1/4 section corner which is marked with a stone. I rebuild this corner in its original position. I set an iron pipe over the stone which is three feet below the road surface, and deposited a marked brick.


The notes at this corner are clear where both the iron pipe and the stone are in the same position. The term

"rebuild," when referring to the position of the corner, might only refer to straightening it or packing the soil firmly around it. It was standard practice for deputy state surveyors doing retracement work to measure the size of the stone to verify it to the original notes if it had been removed. Since Lawson made no mention of the size of the stone, it might be further evidence that he did not disturb the original location of the stone, and the iron pipe found on the side was merely added only as a means to help future surveyors locate the stone.

Other iron monuments mysteriously appear next to stones whose origins are not clearly indicated or recorded in any notes like those of Harold Lawson. One such incident occurred at the East 1/4 corner of Section 27, T12N, R6E. In 1883 County Surveyor James P. Walton determined this corner to be lost, so he set a red flint stone measuring 21"x12"x4" midway and halfway between the two found section corners north and south. State Surveyor Hugh Dillon accepted and verified the position of the stone in 1937, as did County Surveyor Henry Graff in 1966. Sometime after 1966, someone (presumably a private surveyor) had placed an iron pipe on the east side of the stone leaving the top of the pipe exposed several tenths above the top of the stone. This might give the impression that the iron pipe was the true corner, especially if other surveyors had recorded the monument at this location to be an iron pipe without mention of the stone. A traverse of the mile showed the top center of the stone to be exactly on line between the section corners, and excavation proved the stone to match the measurements stated in 1883 when it

was set. The iron pipe had merely been set by someone to aid in finding the stone, but had instead evolved into being the corner and thus produced a confusing situation.

Each situation is always different and requires thorough research and often measurements to verify the true monument position. In Nebraska only the county surveyor of each particular county can reset the location of an original government section corner. While this may seem like a burden to those coming into a particular county if the needed corner is gone, Nebraska has implemented a system where each corner position is usually guarded by one entity. This usually eliminates the placement of additional monuments for the same corner. In both of the above-mentioned instances, the positions of the stones were held. The stones were lowered with the iron pipes placed above the stones in the same horizontal position. The notes taken and recorded during the rebuilding of these corners clearly explain what was done, and therefore has eliminated a confusing situation for future surveyors.

Surveyors who place iron monuments beside stone monuments should be careful not to create a situation of double monumentation. It is best to place them well below the surface of the top of the stone so the stone will be found first upon digging. Even if you have recorded what you have done on your survey plat, not all surveyors will take the time to research the records or clearly understand what they have found. 

Jerry Penry is employed by Lancaster County Engineering in Lincoln, Nebraska. He has been a licensed surveyor since 1994 specializing in section corner monumentation and GPS surveying, and has written numerous surveying articles for newsletters and magazines.