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A Lesson in Survey History Lends Confidence to Energy Development

Energy developers understand the importance of accurate survey work throughout project development and construction. What they may not know is how the history of survey methods, and how well surveyors do their homework, can impact today's projects.

Modern surveyors use advanced technology to achieve highly accurate project records, but they still need to understand historical methods. Some land has been resurveyed many times over, resulting in layers of records that must be navigated to ensure accuracy. Monuments placed in the field hundreds of years ago may not have been found in a given survey effort, causing discrepancies if they are later located. Because energy developers rely on accurate surveys of section lines and property boundaries for design and construction, projects run more smoothly when thorough, experienced surveyors are on the team – and when the developers themselves understand the potential liabilities at stake.

The Public Land Survey (PLS) takes precedence over all subsequent work. This rectangular survey system is now generally in place west of the Appalachians. Enacted by the Land Ordinance Act of 1785, the PLS divided western lands into grid-shaped townships and sections. Before the PLS, land was surveyed using a landmark-based system called metes and bounds.



The original surveyors used chains to measure distances and placed wooden posts or stones at township, section, and quarter-section corners. Surveyors marked nearby “bearing trees” and noted landscape features such as roads and Indian trails.



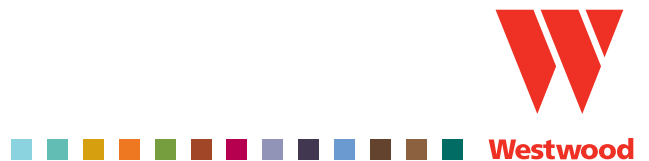
These two examples of original monuments hint at some of the challenges faced in relocating them.

The challenge facing today's surveyors depends on location. In populated areas, surveyors need to connect current information to previous surveys and ultimately to the PLS. In unpopulated areas, where many energy projects are located, often no surveys have taken place since the PLS. Surveyors then need to interpret historical records in order to confirm the position of section corners. While natural features observed during the original survey and current features (such as fence lines) can be used to perpetuate section corner locations, excavating equipment may be needed to locate the original stone or stake.

There are no hard and fast rules about how much effort must be expended to find the original monument before a corner is replaced. Here lies the value of experience and professional judgment. If a corner is re-set by one surveyor and then the original monument from the 1800's is found by a subsequent surveyor, the PLS location takes precedence. Thus, project design calculations that were based on the replaced corner must be re-done to correct section lines, property boundaries, and subsequent setbacks, costing developers time and money. If discrepancies arise after construction, project owners run the risk of having improvements that no longer fall within the boundaries of leased land.

Our surveying forefathers established an innovative system of inventorying land that has stood the test of time. When today's surveys are properly connected to the original work, accurate maps are the result. With a thorough pre-construction survey in hand, project design becomes more efficient and unexpected encroachments are eliminated.

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