The Role of Surveys in Boundary Dispute Resolution

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Basic Elements of a Survey

Land surveying is one of the oldest professions that exists in society today dating back to biblical days. Even in ancient times, people had difficulties living peacefully with one another. In the 13th chapter of Genesis, two brothers, Abram and Lot, needed to have separate lands for their respective families and possessions to dwell in. Hence God created a subdivision in order for the land could be divided between these two brothers.

Genesis 13:14, 15 “And the Lord said unto Abram, after that Lot was separated from him, Lift up now thine eyes, and look from the place where thou art northward, and southward, and eastward, and westward: For all the land which thou seest, to thee will I give it, and to thy seed for ever.”

Throughout history, people have been dividing, selling, and conveying their lands. In order for people to live peacefully with their neighbors, landmarks were established so individual’s land rights could be easily identified. Even strong penalties were set to keep people from tampering with these markers.

Deuteronomy 19:14 “Thou shalt not remove thy neighbor’s landmark, which they of old time have set in thine inheritance, which thou shalt inherit in the land that the Lord thy God giveth thee to possess it.” Deuteronomy 27:17 “Cursed be he that removeth his neighbor’s landmark. And all the people shall say, Amen.”

However, this profession is one that is not always understood by today’s public. Land surveyors, licensed by state governments, perform various services pertaining to the measuring of land and the reporting of the same. In Maryland, there exists two types of
license, a land surveyor and a property line surveyor. As defined by Maryland law, a "land surveyor" means an individual who practices land surveying. Also, "property line surveyor" means an individual who is licensed by the State Board for Professional Land Surveyors to practice property line surveying. Although a land surveyor is authorized to practice in more areas than a property line surveyor, both are authorized by the State to practice as follows: "Practice land surveying" means any service, work, documentation, or practice, the performance or preparation of which requires the application of special knowledge of the principles of mathematics, the related physical and applied sciences, and the requirements of the relevant law, as applied to: 1) measuring, platting, and locating lines, angles, elevations, natural or artificial features in the air, on the surface of the earth, in underground work, and on the beds of bodies of water for the purpose of determining and reporting positions, topography, areas, and volumes; 2) the platting or replatting, establishing or reestablishing, locating or relocating, or setting or resetting the monumentation for boundaries of real property, easements, or rights-of-way; 3) platting, layout, and preparation of surveys, plats, plans, and drawings, including: site plans; subdivision plans; subdivision plats; condominium plats; right-of-way and easement plats; and other recordable plats; 4) conducting horizontal and vertical control surveys, layout or stake-out of proposed construction, and the preparation and platting of as-constructed surveys; 5) utilizing measurement devices or systems, such as aerial photogrammetry, global positioning systems, land information systems, geographic information systems, or similar technology for evaluation or location of boundaries of real property, easements, or rights-of-way; and
To sum it all simply, a surveyor is an “expert measurer” who measures and reports his/her findings. However, one misunderstanding is that though one may hire a surveyor to perform for them a survey, because the surveyor is licensed by the State and because there a minimum survey standards that need to be adhered to, surveyors have a duty to the general public as a whole. Recently, I had a survey that I performed that I still have not been paid for because the client clams that I have never finished because I did not establish his property line where he wanted it. I could not convince him that I had to establish the property line in accordance with my training, with the land record documents, and how it relates to his neighbor’s line. Hence, to perform a survey, one needs to perform adequate research of the public land records, research private unrecorded records, recover and locate physical field evidence, compute and analyze the data collected, and make educated determinations of the establishment or re-establishment of property corners, property lines, and rights. Enclosed, as appendix “A” is the Maryland Minimum Standards of Practice for Land Surveyors.

Nonetheless, many look to surveyors to determine who owns what rights. With all his/her training, research, measuring, computing, analyzing, and preparations of drawings that delineate his/her work; her/she only can render a professional opinion, it is the courts who determines who owns what. Property disputes take several forms that I have observed. First, those that deals with the physical size and shape of land. This includes those that fight over exactly where a common property line exists. Second, those that deal with the rights that people have over the lands of others. Or, the rights that others have across our lands. These rights include right of ways, easements, license and other such
encumbrances. However, hopefully a surveyor can be of great assistance in resolving a property dispute. Their job and charge should be to research, measure, and report the facts. Unfortunately, sometimes the surveyor adds to the problem by not researching deep or far enough. A good surveyor is always digging and scratching to uncover all the possible evidence that can be retrieved. Many times surveys will differ because of the level of effort that went into the survey.

Every commercial land transaction is anchored with a land survey and a title insurance policy. This is the requirement of all lenders who finance the transaction. In many of these transactions, however, because of cost or time restraints, pressure is placed on the surveyor to perform something of less detail. Is this really a good step? What benefit is the survey anyway? Isn’t it good enough that one was done a year or so ago? Is it just a map with a current surveyors seal and signature?

It is very unfortunate that many individuals view a land survey as nothing more than an extra cost and a time delay when acquiring property. When in fact, the land survey is in reality a tremendous benefit to not only the lender but also the purchaser. Though some may be pressured into performing just a “quick and dirty” job, there are standards that a land surveyor must follow. In 1999, the American Land Title Association, the American Congress on Surveying & Mapping, and the National Society of Professional Surveyors adopted minimum standard detail requirements for performing land title surveys. Also, for all survey work in the State of Maryland, the Department of Labor, Licensing, and Regulation has set forth minimum standards of practice for all
types of surveys performed by licensed surveyors. These requirements set forth the procedures and the level of detail that must be adhered to. The ALTA standards also have optional specifications that are referred to as the “Table A” list that include such items as the following: setting monuments at corners, showing vicinity map on drawing, flood zone designation, contours, identifying setbacks, square footage & height of buildings, parking areas & number of spaces, public road access, and utility locations. A copy of the ALTA Standards is enclosed as appendix”B”.

What is the purpose of a survey? Well, a boundary survey (or as commonly referred to as a property survey by some) is to establish or re-establish the physical position and extent of the boundaries of real property. It reveals the existence of other rights affecting the property such as easements, rights of way, etc. Also, the relationships of improvements relative to property lines are established.

One might view the survey as being costly and time consuming because all they see is the map or drawing that is produced as the result of the survey. But consider what is not known about the steps taken to produce that drawing. What is not known is the level of research and investigation that is performed by a thorough survey. Not only does he investigate the record evidence for the subject tract of land, but he also investigates the record evidence of the adjoining tracts to reveal commonality or ambiguity. Furthermore, when performing the fieldwork, he investigates and surveys the field evidence of property markers for both the subject tract and adjoining tracts in order to reveal any
discrepancies that may exist with adjoining lines and deeds. Also, visible encroachments and visible indications of the rights that may be acquired by prescription or adverse possession are surveyed. Without a doubt, there is a great deal of research and investigation that is performed both from public and private records and from the actual site visits that are necessary in order to accurate represent the current conditions of the property on the map or drawing that is produced for settlement.

Furthermore, when a survey is performed, property markers should be set if they were not recovered. Sometimes, in an attempt to save money, this is an option that may be eliminated from the scope. But this can be very helpful in not only physically delineating the property lines on the ground, but also in visibly determining the reality of encroachments of physical improvements onto someone else’s property or the encroachments of others onto the subject parcel of land. Furthermore, if an adjoining property owner wishes to dispute the delineation of a common boundary line, it would be best to have this out in the open prior to acquiring the property. This allows for the issues of disputes and discrepancies to be addressed prior to acquisition. If not addressed, at least they are revealed so that the purchase is made with the known potential problems as opposed to not knowing and finding out later.

In a nutshell, the surveyors’ role is to discover the facts and then report them. Bottom line, a thorough land survey is beneficial to the purchaser because it allows him to be an informed purchaser.
Types of Surveys Used in Dispute Resolution

Several types of surveys used in the dispute resolution are boundary surveys, topographic surveys, and specialty surveys. However, many times individuals involved in a property dispute think they have a survey that they can rely on. Unfortunately, often time they only have a location drawing and not a real survey. A location drawing (many times improperly called a location survey, also known as a mortgage survey) is for the purpose of locating, describing, and representing the positions of buildings or other visible improvements, or both, affecting the property being inspected. The results of the location drawing will be stated on a plat showing the property inspected and the location of the buildings or other visible improvements affecting the inspected property. It is not a boundary survey and the boundary lines shown on these surveys are located approximately to an accuracy of plus or minus one foot. The dimensions of located improvements to the property lines shown on these survey drawings are also to an accuracy of plus or minus one foot. And yet, many property owners use these drawings to construct fences, plant trees and shrubs, and situate other incidental improvements to their property. This no doubt fuels many disputes between property owners. Attached, as appendix “A” is the Maryland Minimum Standards of Practice for Land Surveyors which one can see the differences between location drawings and that of real boundary surveys.
A boundary survey is a means of marking boundaries for sufficient definition and identification to uniquely locate each lot, parcel, or tract in relation to other well recognized and established points of reference, adjoining properties, and rights-of-way. The purpose of a boundary survey is to establish, reestablish, or describe, or all of these, the physical position and extent of the boundaries of real property, including the discovery of visible indication of rights that may be acquired by prescription or adverse possession. Unless otherwise directed by the party requesting the survey, sufficient monuments or reference control points which were used to determine the property lines shall be: (a) Set or recovered on the ground, to the extent feasible; and (b) Shown on a plat upon completion of the boundary survey so that the property lines can be determined or readily reestablished. If a plat is not required, the surveyor shall make a reasonable effort to maintain adequate records to substantiate the surveyor's professional opinion in reestablishing property lines and corners on a survey.

A topographic survey is to locate, describe, or map, or all of these, the elevations and positions of the physical features and characteristics of the surface of the earth including spot elevations, contours, and other features. The results of a topographic survey shall clearly show the results of the field and office work, and shall be presented, depending on the type of professional services requested, in the form of; a plat; a worksheet; or raw data.
A specialty survey is one that is accomplished for a very specific reason and usually deals with some aspect of existing conditions or delineating previous conditions. Drawings are prepared to delineate these unique situations.

**Retracement of Boundaries**

Many times a title report will be provided to the surveyor of the property in question. However, he still needs to perform his/her courthouse research because the title reports for property do not include the neighboring tracts. A surveyor needs to be concerned with how adjoining properties are described. Deeds and plats will be pulled for the subject tract as well as the adjoining parcel tracts. The subject parcels will be research both backwards and forwards for a minimum of 60 years. This examination will reveal any off-conveyances that may have transpired and also reveal the existence of easements and rights-of-ways. This review will also bear any ambiguities that may exist between the subject tract and adjoining tracts. For properties fronting along Maryland State Road Commission network, research must also include the review of Maryland SHA records for right-of-way plats that may or may not be on file at local county land records office. Often times our research reveals previous surveys performed on the subject properties, and we must attempt to contact these surveyors to obtain copies of their records.

Upon completion of this research, a digital deed mosaic will be assembled. Each tract or parcel will be computed to verify closure. Translating and rotating each parcel as
necessary to join common boundary lines will assemble all tracts. However, the deed mosaic should bear all references to respective deed bearings and distances along with “called for” monumentation. Once the mosaic is complete, it will be coordinated for the use of aided field reconnaissance of property evidence.

Prior to entering onto private property, surveyors should obtain proper right-of-entry for the survey. Therefore, prior to survey crews visiting the site, a letter of introduction can be sent to the respective property owners indicating the purpose and approximate schedule of the survey and also requesting right-of-entry. Upon survey crew’s arrival to the site, a friendly announcement of their presence should also be made known to the individual property owners by knocking on their doors and introducing themselves. Each crew should be equipped with business cards and also door hangers to be left in the case that someone is not at home.

The field survey aspect of the project is broken down into the following tasks: property evidence reconnaissance, control ties to county monuments, traverse and location of property evidence, and additional reconnaissance after initial boundary resolution.

The property evidence reconnaissance can be accomplished by using the aid of mapping-grade GPS receivers. The data derived from the deed mosaic will be uploaded in the mapping-grade GPS receiver and the crew will navigate to each “called for” and
“not called for property” corner. As a location is determined, if nothing is immediately found, the crew chief will use a magnetic locator to further refine the search, looking in a twenty-five foot radius. Furthermore, the crew chief will also converse with property owners to identify property markers that they might be aware of. All evidence recovered will be flagged for easy identification during location.

The properties should be tied horizontally to the Maryland Coordinate System NAD 83/91 to the nearest NGS control monuments. Today, this is accomplished very easily and quickly with the aide of GPS technology. This will allow future recovery of property markers much easier.

A traverse must be set and run in order to meet the accuracy and procedures as outlined in the Maryland Minimum Standards of Practice for Land Surveyors, Chapter 06, subtitle .03 Boundary Survey. All traverse points should be established with #5 rebar rods at a minimum of 18-inches deep with red caps on top that will identify them as being traverse points. Each traverse point set should be witnessed by a 30-inch wood guard stakes, which will be tied with flagging and properly marked. These stakes should bear the wording “traverse point” with appropriate number and marked as “not a property corner”. The party chief must review the angle observed for each setup in order to verify compliance to state regulations. Should a set of angles observed not meet the requirement, and additional set must be observed until compliance is reached. All field property evidence identified during reconnaissance should be located electronically with
a total station and data collector. All improvements and possession lines should also be located. Any observable evidence of easements must be located as well. All data should be recorded in the data collector and downloaded directly into the COGO software.

Nonetheless, should additional reconnaissance be determined to be needed by the Professional Land Surveyor making the initial boundary resolution, a survey crew will revisit the property one last time to look for additional evidence. However, this search will be refined by physically measuring with the aid of a total station and data collector to corners not previously found with hard computed positions based on an initial resolution to a best-fit scenario to located evidence. All additional evidence recovered will be recorded in the data collector and downloaded directly into the COGO software.

Traverse data is computed and adjusted in accordance with standards. All traverse and side-shot data will be computed and plotted on a worksheet with the aid of COGO software. A licensed land surveyor must review the field evidence in conjunction with the record information and make a resolution to the boundary. Should the first initial attempt to resolve the boundary leave unanswered question in the surveyors mind, additional reconnaissance should be performed. However, the deed mosaic will be positioned over the field evidence worksheet in a best-fit scenario. Refined coordinates will be given to the field crew to aid their additional search. Once a final boundary resolution is derived, all property lines and corners relative to the subject parcel will be coordinated.
Though a survey computer technician in most cases prepares the survey plat, it must be done under the direct supervision of a Maryland Professional Land Surveyor. These plats are generally prepared on CADD. All pertinent data must be shown and labeled. Upon completion of a draft, it should be thoroughly reviewed by a licensed land surveyor. The plat will bear the seal and signature of a Maryland Professional Land Surveyor. A metes and bounds description must be prepared in accordance with Maryland Minimum Standards of Practice for Land Surveyors. Property markers should be established accordance with COMAR regulations.

Surveyors are also called upon as expert witnesses when disputes end up in court. Their role is to explain to the court the facts.

Another area that may be disputed by individuals deal with riparian rights and boundaries that are bordered by water bodies. One reason for this dispute is because water bodies change their positions. Where they are today, may not be where they were yesterday, and undoubtedly, it will not be where they will be tomorrow.

Law to properties abutting water bodies such as oceans, lakes, rivers, or streams grants riparian rights. The privileges and rights conferred upon the riparian owner may take the form of rights to the following: to construct dams, docks, and mills; to the bed of the lake or stream; to land deposited by accretion; of navigation; or to take minerals. In cases where erosion takes place or where rising waters cause inundation, the riparian
owner may suffer losses. The role of the surveyor is to be familiar with these various laws in order for him to measure, locate, analyze, and report his findings to the public. A clear understanding of rights as it pertains to navigable or non-navigable water bodies. According to federal law, the beds of all navigable waterways belong to the states, and the beds of nonnavigable waterways belong to the upland owners. Also, variables of vertical datum, the effects of tides, and the establishment of mean sea level need to be understood.

**Environmental Responsibility**

Lastly but not least, a surveyor has a responsibility to his/her client regarding environmental issues. Though he may not be trained as an environmental scientist, he/she does have an obligation to report what he sees. He can only be held accountable for what is observable. These would include non-tidal wetlands, endangered species, toxic waste, etc. Even today, champion trees need to be identified. During the course of his/her fieldwork, attention must be given to what currently exists on the property or what had existed. Nonetheless, the surveyor must report what he sees. Notice can be given on the survey drawing or it can be given in the form of a surveyors’ report or letter.

One area that a surveyor is trained and qualified in is that of determining and establishing flood plain areas. He/she must delineate the 100-year flood plain as it effects the properties that are surveyed.