Avoiding Boundary Problems
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# Understanding Surveyor Reports

New York State Association
~ of ~
Professional Land Surveyors

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Presented by
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Biography of Gary R. Kent

Gary Kent was a professional surveyor for The Schneider Corporation, a land surveying, GIS and consulting engineering firm based in Indianapolis for 37 years. His responsibilities included account and project management, safety, corporate culture, training, coaching and mentoring members of the surveying staff, and advising the GIS Department on surveying matters.

Gary is a graduate of Purdue University with a degree in Land Surveying; he is registered to practice as a professional surveyor in Indiana and Michigan. He has been chair of the committee on ALTA/NSPS Standards for NSPS since 1995 and is the liaison to NSPS for the American Land Title Association. He is also past-president of the American Congress on Surveying and Mapping and a twice past president the Indiana Society of Professional Land Surveyors.

A member of the adjunct faculty for Purdue University from 1999-2006, Gary taught Boundary Law, Legal Descriptions, Property Surveying and Land Survey Systems and was awarded "*Outstanding Associate Faculty*" and "*Excellence in Teaching*" awards for his efforts. Gary is on the faculty of GeoLearn (www.geo-learn.com), an online provider of continuing education and training for surveyors and other geospatial professionals. He is also an instructor for the International Right of Way Association.

Gary has served on the Indiana State Board of Registration for Professional Surveyors since 2004 and is currently chairman. He is frequently called as an expert witness in cases involving boundaries, easements and land surveying practice. Gary regularly presents programs across the country on surveying and title topics, and he also writes a column for *The American Surveyor* magazine.

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The Boundary Survey – Client Expectations and Disconnects

When performing an ALTA/NSPS Land Title Survey there are typically attorneys and title companies involved who understand the purpose of the survey, and what the surveyor can and cannot do (even though lenders routinely and knowingly try to demand more from the surveyor than he or she can legally deliver).

However, when conducting a boundary survey for landowners, there is usually a large and potentially dangerous gap in understanding between what clients *think* they are going to get and what the surveyor can actually deliver. The client is likely expecting that the surveyor is going to tell him or her "*what I own*." Yet every surveyor knows that surveyors do not have the authority to determine title (i.e., "ownership"). Thus, with the *initial conversation* between the client and surveyor there is already a major disconnect and the surveyor has likely not addressed the client's expectations.

While it can be uncomfortable and perhaps inappropriate, and it probably leaves a bad taste in a potential client's mouth to start off a conversation with what you as the surveyor *cannot* do, there are ways to deal with this issue without leaving clients confused, questioning your experience or knowledge, and wondering if they will be getting what they really want.

One excellent approach is to ask the client why she needs/wants the survey – and listen closely to her answer. Reflect her answers back to her in different words, and ask your own questions. You can build a level of comfort and respect simply by listening to the client.

Through the client's answers and your subsequent dialogue, an opening will come that allows you to explain exactly what you are able to do for them; and, if appropriate – given what they are expecting – what you cannot do for them.

The client may respond to your inquiry with *"I need to know where my property is because my neighbor is planning on building a new fence."* Once you ascertain if there are any underlying issues (like she and her neighbor are already arguing over where the line is, or there is an old, existing fence being replaced, or the neighbor has already had a survey), you can explain that the basis for a boundary line is the written title. Written title is, by law, best represented by your client's deed, although other factors often are involved. You can explain that <u>where</u> a boundary line is, is the purview of you, the surveyor, but <u>what</u> that boundary line represents is a function of the law.

For example, a boundary line described in a deed may represent the line of <u>written</u> title, but if the neighbor has occupied over that line for 50 years, there is a possibility that the boundary line does not actually represent the line of *ownership* due to acquiescence or adverse possession. In such a case, the <u>where</u> of the boundary line may not be consistent with the client's expectation of <u>what</u> it is (i.e., it is not the boundary of her ownership even though it is the boundary of her deed).

In order to assuage the client's unease that she may not actually get from you she thinks she needs, you can assure her that if there are gaps or overlaps, or other potential title (ownership) problems, discovered in the process of the survey, you will show and explain them. And if the client wants your opinion as to their impact on the property, you could give a qualified one (i.e., based on your training, knowledge and experience, but not as an attorney; only a judge can make a final determination).

Some surveyors will be concerned that their stature will be diminished or damaged by having such frank and revealing conversations. However, the reality is that if the tenor of the conversation is controlled and the surveyor is able to communicate in other than technical language, the client will walk away feeling like he has hired a real professional who really knows that they are doing.

Recordation Statutes

Where there is a gap or overlap between properties – representing some sort of conflicting junior/senior rights - some surveyors will (and possibly in some states, like parts of New England and Texas, apparently must) research the chain of title to attempt to determine which deed is senior.

Surveyors should recognize that this is an exercise in title, and not a matter of survey.

In doing so, the surveyor is essentially deciding who "owns" written title to the area in question. However, the answer is not always clear by simply examining the written record. This is because the effect and order of recordation and the date of execution of conflicting deeds can differ from state to state and may be dependent on whether there was notice to subsequent purchasers of prior conveyances.[1]

Another very simply way of saying this is that the first deed recorded is not necessarily the senior deed.

Race statute

Also known as the "Race to the courthouse." The rule that the document recorded first wins and will have priority over any later recordings.

- States that follow the Race statute: Delaware, Louisiana, and North Carolina. [One source found also included Maryland]

Notice statute

A later buyer who pays fair value for the property and does not have notice that there were any other earlier conflicting interests, wins and will have priority over any later recordings. If a prior interest records first, but not until after a subsequent purchaser paid fair value, that recordation has no effect.

- States that follow the Notice statute: Alabama, Arizona, Connecticut, Florida, Illinois, Iowa, Kansas, Kentucky, Maine, Massachusetts, Missouri, New

[1] See http://www.legalmatch.com/law-library/article/recording-acts.html

Hampshire, New Mexico, Oklahoma, Rhode Island, South Carolina, Tennessee, Vermont, and West Virginia.

Race-Notice statute

A later buyer who pays <u>fair value</u>, does not have <u>notice</u> of any other earlier conflicting interests, and <u>records first</u>, wins and will have priority over any later recordings.

- States that follow the Race-Notice statute: Alaska, Arkansas, California, Colorado, District of Columbia, Georgia, Hawaii, Idaho, Indiana, Maryland, Michigan, Minnesota, Mississippi, Montana, Nebraska, Nevada, New Jersey, New York, North Dakota, Ohio (regarding mortgages, Ohio follows the Race statute), Oregon, Pennsylvania (regarding mortgages, PN follows Race), South Dakota, Texas, Utah, Washington, Wisconsin, and Wyoming. [Note one source found stated that Maryland is a race state]

New York Statute – Effect of Recordation (Race-Notice Statute)

> § 291. Recording of conveyances. A conveyance of real property, within the state, on being duly acknowledged by the person executing the same, or proved as required by this chapter, and such acknowledgment or proof duly certified when required by this chapter, may be recorded in the office of the clerk of the county where such real property is situated, and such county clerk shall, upon the request of any party, on tender of the lawful fees therefor, record the same in his said office.
>
> <u>Every such conveyance not so recorded is void as against any person who subsequently purchases … the same real property or any portion thereof … in good faith and for a valuable consideration, from the same vendor or assignor, his distributees or devisees, and whose conveyance, contract or assignment is first duly recorded</u>, and is void as against the lien upon the same real property or any portion thereof arising from payments made upon the execution of or pursuant to the terms of a contract with the same vendor, his distributees or devisees, if such contract is made in good faith and is first duly recorded. [emphasis added]

Junior/Senior Rights

In most public land survey states and in many of the colonial states, surveyors do not routinely attempt to resolve junior/senior conflicts. Rather they simply report the potential conflict, which is what the ALTA/NSPS Standards require.

As noted above, however, in some New England states and in Texas, surveyors either *must*, or routinely do, ostensibly 'resolve' junior/senior relationships in order to comply with their respective states' laws.

§663.16. Boundary Construction[2]

(a) When delineating a property or boundary line as an integral portion of a survey, the land surveyor shall respect junior/senior property rights, footsteps of the original land surveyor, the record, the intent as evidenced by the record, the proper application of the rules of dignity or the priority of calls, and applicable statutory and case law of Texas.

Some surveyors around the country, outside Texas and New England, would suggest that there is only one boundary; and in order to properly determine its location, the surveyor must resolve the junior/senior relationship. This argument creates an interesting dichotomy in attitudes towards title.

Most knowledgeable surveyors would suggest that title cannot be resolved by a surveyor – particularly when it is potentially affected by unwritten rights (e.g., adverse possession, acquiescence) because they know it is the purview of the courts to ascertain whether or not such rights have been successfully achieved, and to perfect written title if they have.[3]

Yet, resolving junior/senior rights is likewise a title issue, not a survey issue. The ALTA/NSPS Survey Standards ever since 1962 and in the 2016 version, in particular, take this stance. When preparing an ALTA/NSPS Land Title Survey, *"Where gaps or overlaps are identified, the surveyor shall, prior to or upon delivery of the final plat or map, disclose this to the insurer and client."*[4]

Aside from boundaries per se, surveyors *do* get indirectly involved in title when performing an ALTA/NSPS Land Title Survey. The primary purpose of the ALTA/NSPS Survey Standards is for the surveyor to locate and show those conditions observed that could adversely affect title to the property being surveyed. Such conditions would include potential prescriptive easements and adverse claims by others. By virtue of a proper and complete Land Title Survey, the title company is appropriately informed of such conditions and can, by virtue of listing them in the title commitment, likewise inform the interested parties, and help facilitate responses or solutions that will eventually aid in a successful real estate transaction.

Surveyor Reports - 865 IAC 1-12 ("Rule 12" – Indiana Survey Standards)

865 IAC 1-12-2 (m)

"Theory of location" means applying:

(1) federal laws, including 43 U.S.C. 751 through 43 U.S.C. 775;
(2) state and local laws; and
(3) court precedent;

to establish the position of real property corners.

[2] Texas Administrative Code Title 22, Part 29, Chapter 663, Subchapter B, Rules §663.16 – Boundary Construction

[3] Importantly, there are valid arguments in favor of the surveyor acting on potential unwritten rights to establish boundaries (excepting adverse possession) when the two affected parties are in agreement as to the location of their common line albeit that location may not agree with the written title line(s).

[4] 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys, Section 6.B.vii.

865 IAC 1-12-12

(a) When conducting a retracement survey or an original survey, a registered land surveyor shall do the following:

(1) Furnish the client with a written surveyor's report that, in addition to other pertinent data, identifies the type of survey, explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel, and gives the registered land surveyor's professional opinion of the cause and the amount of uncertainty in those lines and corners because of the following:

(A) Availability and condition of reference monuments.

(B) Occupation or possession lines.

(C) Clarity or ambiguity of the record description used and of adjoiners' descriptions and the relationship of the lines of the subject tract with adjoiners' lines.

(D) The relative positional accuracy of the measurements.

(2) **Record the plat of survey and the associated surveyor's report** in the county recorder's office in the county where the property is located when:

(A) a new tax parcel will be created based on the survey;

(B) a survey of;

(i) an unsubdivided tract; or

(ii) a portion of a subdivided lot;

has not been previously recorded;

(C) if, in the registered land surveyor's opinion, a survey of a whole subdivided lot or lots is substantially at variance with:

(i) the subdivision plat;

(ii) previously recorded surveys;

(iii) monuments; or

(iv) evidence of possession;

(D) if, in the registered land surveyor's opinion, the:

(i) monuments;

(ii) monument witnesses;

(iii) evidence of possession; or

(iv) description;

are not consistent with the last recorded survey of the parcel;

(E) it is required by law; or

(F) the plat of survey contains land for a new subdivision plat that will subsequently be recorded. The subsequent subdivision plat must be cross-referenced to the previously recorded survey plat.

* * *

(d) The plat of survey and the associated surveyor's report shall be recorded in the case:

(1) an original or retracement survey (not previously recorded) that contains a proposed new subdivision plat, before recording the new subdivision plat; or

(2) retracement or original surveys not described in subdivision (1) within:

(A) three (3) months of the survey certification date; or

(B) three (3) years and three (3) months of the survey certification date in those instances where the client signs an objection, which must contain the following statement:

"I, the undersigned, hereby request that the following identified survey, certified to me":
(Indicate one (1) or both of the following:)
(i) Shall not be recorded for a period of three (3) years and three (3) months from the date of certification.
(ii) Shall not contain the name of the undersigned client on the survey recorded.
Signed: ________________________
Date: __________________________
Certifying Surveyor:
Certificate Date:
Job Number:
Brief Description:

A copy of the signed statement shall be kept with the land surveyor's file.

865 IAC 1-12-13.

(a) When conducting a retracement or original survey, a registered land surveyor shall furnish the client with the surveyor's report and a copy of the plat of survey of the premises drawn to an appropriate scale in such a manner that the data shown will be clearly legible when the plat is reduced to sheets suitable for recording in the county in which the survey was conducted.

(b) **The plat of survey, together with the accompanying surveyor's report, shall show or otherwise contain the following information at a minimum:**

(1) The;
- (A) client's name;
- (B) date of the last fieldwork;
- (C) surveyor's file number; and
- (D) the:
  - (i) name;
  - (ii) address;
  - (iii) signature, and
  - (iv) registration number;

of the surveyor responsible for the work.

(2) For retracement surveys:
- (A) the record document description or recording information of the parcel surveyed; and
- (B) any new, modified, or consolidation description with an explanation in the surveyor's report as to why the new description was prepared, together with a statement regarding the location of the new description relative to the record description.

New York – Minimum Standards for Boundary Surveys

Section 11

A. Deliverables

The surveyor should provide a professional opinion in the form of a written report, visual graphic representation, (map or electronic file) and/or correspondence as necessary, appropriate and/or as outlined in the agreement. Any such report or deliverable should be based on the surveyors' findings and professional opinion and should be:

1. Within and cover the scope of the agreement with the client;
2. Within the scope of the professional knowledge of the surveyor;
3. Supported by the facts, evidence and information relied upon by the surveyor;
4. In a format which will convey relevant and/or record information, and organized and displayed to be as comprehensible and understandable as possible to the client or their agent.

B. Mapping Requirements

All maps prepared should include the following information and all such additional information necessary to visually convey the findings of the survey to the client or their agent, other knowledgeable practitioners and/or the public.

A boundary survey map is a drawing that depicts the mathematical and physical features of a parcel of land with relation to deeds of record, map lines, and/or other pertinent reference data based upon an actual field survey. The map should:

1. Identify the client or project name;
2. Identify the surveyor, the surveyor's address and license number;
3. Identify the instruments affecting title to the parcel surveyed;
4. Identify the north reference and/or basis of bearings;
5. Provide sufficient data for the mathematical closure of the boundary lines depicted with the area enclosed indicated;
6. Clearly relate the record description calls to the parcel including deviations;
7. Identify record documents (i.e. mapping or other information) utilized in the establishment of the boundary lines surveyed;
8. Reference the parcel to the local political or municipal entities and/or boundaries (i.e. county, town, village, street lines, tax map parcel number);
9. Reference a datum and a specific benchmark or reference point when elevations are shown;
10. Identify the scale and any conversion factor necessary;
11. Identify character and location of visible physical features with reference to boundary lines as necessary to inform the owner of critical issues affecting title (i.e. encroachments, easements, structural projects and openings, visible utilities);
12. Indicate date of field survey completion and date of map preparation;
13. Identify and describe monuments found or set on the property being surveyed;
14. Identify all revision dates to original map with changes clearly stated;
15. Reference apparent easements, rights of way and lease lines;
16. Indicate applicable ties (i.e. building corners, intersections, other monuments)

Map information and or survey reports should be clear, legible, and sufficient in nature so when associated with the record description, the boundary lines are evident without supplemental data or information.

C. Survey Reports

A Survey Report if prepared, should provide a narrative description of the project, scope of work performed, a detailed description of the procedures, record information used, findings and the basis of the findings.

Uncertainties in Boundary Locations and their Ramifications

2016 ALTA/NSPS Standards - Sections 3.E.ii. and 3.E.iii.

> 3.E.ii. - Any boundary lines and corners established or retraced may have uncertainties in location resulting from (1) the availability, condition, history and integrity of reference or controlling monuments, (2) ambiguities in the record descriptions or plats of the surveyed property or its adjoiners, (3) occupation or possession lines as they may differ from the written title lines, and (4) Relative Positional Precision. Of these four sources of uncertainty, only Relative Positional Precision is controllable, although due to the inherent errors in any measurement, it cannot be eliminated. The magnitude of the first three uncertainties can be projected based on evidence; Relative Positional Precision is estimated using statistical means (see Section 3.E.i. above and Section 3.E.v. below).
>
> 3.E.iii. - The first three of these sources of uncertainty must be weighed as part of the evidence in the determination of where, in the surveyor's opinion, the boundary lines and corners of the surveyed property should be located (see Section 3.D. above). Relative Positional Precision is a measure of how precisely the surveyor is able to monument and report those positions; it is not a substitute for the application of proper boundary law principles. A boundary corner or line may have a small Relative Positional Precision because the survey measurements were precise, yet still be in the wrong position (i.e. inaccurate) if it was established or retraced using faulty or improper application of boundary law principles.

In the process of conducting a boundary survey, a variety of conflicts between deed descriptions, plats, surveys, and even facts on the ground, will inevitably be found. A brief explanation of the causes of these discords is warranted. And since many disagreements between legal descriptions have their genesis in the surveys that were performed in the creation of those descriptions, a look at the sources in uncertainties in boundary determinations is necessary.

There are four potential sources of uncertainty in boundary locations. These result from (1) uncertain, indeterminate or conflicting reference monuments; (2) inconsistent or erroneous or conflicting legal descriptions and survey plats or maps; (3) lines of occupation or possession that differ from the lines of title described in the deed; and (4) the inherent inaccuracy in any measurement.

Reference/Controlling Monumentation

Any boundary survey must begin at or be based on at least two known "control" or "reference" points. Boundaries are not established out of thin air, they must relate in some way to other known locations, such as street rights of way, section lines, or grant corners.

Reference monuments can take many forms other than those mentioned above since there are many points and lines referenced in any given description on which the boundary is dependent. The location of each of these dependent points or lines must be recovered, established or otherwise determined in order to retrace the boundary properly and with integrity.

The problem is that frequently the referenced point or line is not well-documented. For example, a description may call for a line to run parallel with a railroad right of way line. If that particular railroad was abandoned 30 years ago, determining exactly where the right of way line was may be problematic.

Likewise, a description may commence at the intersection of the centerlines of two old county or township roads. The surveyor may find few if any records related to that location. Upon field investigation, he or she may not find any marker at that location, in which case the location must re-established – often based on conflicting, old and incomplete records and evidence. The resulting location will not have as a high of a level of integrity or "confidence" as if the original marker had been found.

Different surveyors may interpret the records and evidence differently thereby coming up with their own differing location of the same point. Obviously, surveys utilizing different beginning points will result in boundary corners and lines that are in conflict.

Record Documents

Another source of boundary conflicts lies in the records themselves. Many boundary lines, in which one would expect neighboring properties to share "common" lines, in fact, have gaps and overlaps with their adjoiners. The exact source of these variances can sometimes be found and sometimes not. They may be result of unqualified persons writing descriptions or of descriptions that were written without benefit of a land survey.

Sometimes these problems are simply the result of mistakes that occurred in the transcription of a deed and were perpetuated through the years in a series of deed descriptions. Sometimes they are the result descriptions based on conflicting surveys (e.g. as discussed above under "Reference Monumentation"). Conflicts in the records may be the result of simple poor survey work in the first place.

In any case, in a boundary survey, it is important to recognize that conflicts will occur in the records and this is not unusual or unexpected.

Lines of Possession or Occupation

It is not unusual in the process of performing a boundary survey to find lines of occupation such as fence lines or tree rows near, but not exactly on, the actual boundary line. Sometimes these lines will be significantly different from the line as described in the deed. This is important to recognize since great weight is often placed on lines of occupation – sometimes justifiably, sometimes not.

Often, fence and tree lines, for example, are reliable evidence of where a boundary may lie. But sometimes, they differ significantly from the line described in the deed. While these differences may be evidence of the movement of lines by unwritten means such as adverse possession, finding resolution to such issues is well beyond the ability of anyone to resolve without a boundary survey and a deep understanding of boundary law and perhaps the assistance of an attorney and a legal action such as a quiet title suit.

Generally for possession to be considered evidence of original survey lines:

- There must have been a controlling survey that, if located, would control the lines between the adjoiners
- Lines of possession are along the lines surveyed or presumed to have been surveyed by the original surveyor
- A series of possessions in agreement with one another tend to substantiate one another
- The possession is of a former generation (ancient) or testimony can be taken as to its origin
- Possession has the reputation of being on the correct survey lines

Brown, Robillard & Wilson, Evidence & Procedures for Boundary Location, 5^{th} Edition (p. 111)

Measurement Uncertainty

There is no such thing as a perfect measurement. No matter what type of measuring device is used, the "true" length of anything is unknown – at least within the measurement tolerance of the device being used. Surveying is no different.

Surveyors have many highly accurate measuring devices such as electronic total stations, EDM, lasers and GPS. But none of these are perfect and all result in some level of uncertainty in the measurement. And when current technologies are applied in land surveys to retrace boundaries that were originally surveyed with a compass and chain in the mid 1800's, these measurement issues can become significant.

These issues can be the source of conflicts that occur in modern surveys and descriptions as they fit with or relate to older parcels.

Interestingly, of these four sources of uncertainty in boundary location, only the last one – measurement uncertainty – is controllable by surveyor; and it cannot be eliminated, only minimized. The other sources – reference monuments, records and occupation/possession – are part of the evidence that the surveyor uses in forming an opinion about where a boundary line or corner should be placed.

Surveyors must recognize that clients will act on the results of a survey as they see fit unless (or sometimes in spite of) they are given guidance otherwise. If the survey shows the neighbor's 50 year-old fence two feet over the line, the client will immediately go tell the neighbor that the fence needs to move. If there is a gap, the client will want to claim it. And if there is an *overlap*, the client will want to claim *it*! If the surveyor sets a rebar on the record corner which falls 10 feet into the neighbor's corn field, the client will be out there setting a new fence line right down through the field.

Surveyors should also understand what Indiana courts have said about the various situations that often are revealed by surveys (gaps, overlaps, encroachments, fences, prescriptive easements, etc.), and that frequently end up being litigated. Knowledgeably and confidently being able to explain the elements of adverse possession, acquiescence and prescriptive easements, so they can be understood by the lay person is a talent that surveyors need to master. Surveyors owe their clients an educated opinion as to the ramifications of the old fence line.

Thus, it is important that surveyors overcome their technical tendencies, and draw on their usually limited people skills to engage the client and make sure he or she understands what the plat shows and what the points on the ground mean. Joe Jones, Esq. formerly of Victor O. Schinnerer Company – a commended professional liability insurance provider for members of ACSM and NSPS for decades – reported that the majority of claims against surveyors could have been avoided by better (or any!) communication.

Surveyors have an obligation if not a responsibility to help their clients stay out of trouble; they should not be initiating trouble with their surveys.

Other ALTA/NSPS Requirements

2016 ALTA/NSPS Standards – Section 6.B.

> vi. When the surveyed property includes a title line defined by a water boundary, a note on the face of the plat or map noting the date the boundary was measured, which attribute(s) of the water feature was/were located, and the caveat that the boundary is subject to change due to natural causes and that it may or may not represent the actual location of the limit of title. When the surveyor is aware of natural or artificial realignments or changes in such boundaries, the extent of those changes and facts shall be shown or explained.
>
> vii. The relationship of the boundaries of the surveyed property with its adjoiners (*e.g.*, contiguity, gaps, overlaps), where ascertainable from documents provided to or obtained by the surveyor pursuant to Section 4 and/or from field evidence gathered during the process of conducting the fieldwork. If the surveyed property is composed of multiple parcels, the extent of any gaps or overlaps between those parcels shall be identified. Where gaps or overlaps are identified, the surveyor shall, prior to or upon delivery of the final plat or map, disclose this to the insurer and client.
>
> viii. When, in the opinion of the surveyor, the results of the survey differ significantly from the record, or if a fundamental decision related to the boundary resolution is not clearly reflected on the plat or map, the surveyor shall explain this information with notes on the face of the plat or map.
>
> x. A note on the face of the plat or map explaining the site conditions that resulted in a Relative Positional Precision that exceeds the maximum allowed pursuant to Section 3.E.v.
>
> xii. A note on the face of the plat or map identifying the source of the title commitment or other title evidence provided pursuant to Section 4, and the effective date and the name of the insurer of same.

The concept of the surveyor's report has been the topic of a number of articles and columns over the years. In addition, at least several states - Indiana and West Virginia - have administrative rules requiring that a surveyors report be included as a part of a boundary survey. A number of other states and the 2016 Minimum Standard Detail Requirements for ALTA/NSPS Land Title Surveys have standards that strongly imply or require that certain matters related to the survey should be explained on the face of the survey.

There is a wide range of opinions on what should be contained in a surveyors report even amongst the various state laws. In series of five articles in The American Surveyor magazine (February through October 2008) Knud Hermansen, professional land surveyor, professional engineer, attorney at law and professor in the Surveying Engineering and Construction Management Technology programs at the University of Maine, went into great detail in outlining the content that he suggests a surveyors report should include.

Primarily, the surveyor's report should be a tool of *communication* – to their clients, their peers, and even to themselves for future reference. Errors and Omissions insurers will readily volunteer that most liability claims result, or at least are seriously exacerbated, by a lack of good, well-documented communication between the client and the surveyor.

It can be documented that those who tend to migrate into the surveying and engineering professions are generally not good communicators; they tend to be technically good at whatever they tackle, but they are not renowned for being communicators. By giving the surveyor a technical 'venue' to document his or her work, the surveyor's report can; however, in the end, serve as a good communication tool.

Common Themes

The common thread of the various standards calling for or implying the need for a surveyors report has to do with documenting the basis for the surveyor's opinion as to the location of the boundary lines and corners.

- Indiana – the surveyor must prepare a surveyors report that *"explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel.'*
- West Virginia – the surveyors report is to include a *"summary of the research and the weight given to the significant documents"* and information on *"…conflicting evidence and encroachments, overlaps or gaps and how they were resolved."*
- California – a record of survey must include *"data necessary for the intelligent interpretation of the various items and locations of the points, lines and areas shown…"*
- ALTA/ACSM Land Title Surveys – *"All evidence of monuments found beyond the surveyed premises on which establishment of the corners of the surveyed premises are dependent, and their application related to the survey shall be indicated."*
- Pennsylvania – *"A separate written report should be made whenever the results of the survey require explanation, and include (a) all the pertinent facts and an analysis of the facts, and (b) the conclusion drawn or opinion derived from the facts."*

Other Content

Indiana goes further, requiring - as one of the original authors of those standards used to say - that surveyors start telling the truth about boundaries. The Indiana Administrative Code states that the surveyors report must give *"the registered land surveyor's professional opinion of the cause and the amount of uncertainty in [the boundary] lines and corners because of the following: (A) Availability and condition of reference monuments, (B) Occupation or possession lines, (C) Clarity or ambiguity of the record description used and of adjoiners' descriptions and the relationship of the lines of the subject tract with adjoiners' lines, and (D) The relative positional accuracy of the measurements."*

For his part, Hermansen suggested in his articles that the surveyors report include a wide range of information including:

1. Information on the location of boundaries and corners
    a. Historical boundary information from the client's and adjoiners' chains of records
    b. A summary of information discovered in the field
    c. "Rational and reasonable" arguments which were the basis for the surveyor's opinion
    d. Identification of the rules of construction that controlled the boundary resolution
    e. The present monumentation of the corners
2. The communication of information regarding encroachments, gaps and overlaps
3. Limitations to the surveyor's services
4. Frequently Asked Questions
5. Administrative Information

Possible Format

The introductory information in a surveyor report would logically contain information related to the project such as a preamble, perhaps identifying the purpose for the survey and summarizing the work undertaken, and identifying the standards under which the work was performed. This might also be the place for documenting what Hermansen calls 'administrative' items such as confidentiality and copyright statements, a list of who worked on the project, where the project was located, what equipment was used, etc.

The body of the report should contain information related to the records searched, the evidence recovered and the decisions made to resolve any conflicts in retracing or establishing the boundary lines and corners. This could include the appropriate comments on uncertainties that result from conditions beyond the surveyor's control, such as those created by problematic controlling monuments, encroachments, misclosure in the record description and overlaps with adjoiners.

As Hermansen suggests, the surveyor report is an excellent place to list out any limitations, qualifications or disclaimers to the work rather than scatter them across the face of the survey. Qualifying the source of certain records, noting that the survey did not include wetlands delineation or flood determinations, and disclaiming any information on underground features might be logical items to make note of.

Hermansen also proposes the unique and intriguing idea of including a set of frequently- asked-questions in the surveyor's report.

Client/Surveyor Communications

About 90 to 95 percent of all surveyors are 'technically-oriented,' not 'people-oriented' persons. They would rather deal with *things,* than people. As a result, they would generally rather not have conversations with clients - or anyone else for that matter. This tendency can result in all kinds of otherwise avoidable problems such as in collections, dealing with problems situations or clients, and – in the context of this program – in making sure that clients do not misinterpret the results of a survey.

Surveyors might think about client communications in terms of them being technical endeavors, not social engagements. That may help, but only if the surveyor can also avoid the techno-jargon that they are prone to, and consciously think about speaking in non-technical terms. It does not help if the surveyor overcomes his or her technical tendencies and actually has a conversation with the client, but the client walks away having no idea what he or she has just been told.

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Preparing a Survey Report—The Focus

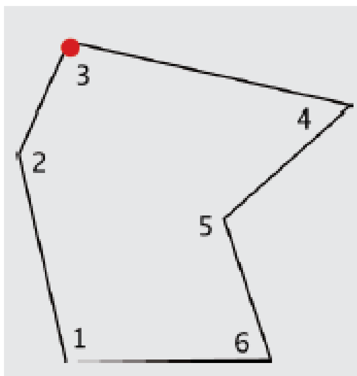
Some states require survey reports. All surveyors should consider preparing survey reports at the culmination of a retracement survey. Unfortunately, the preparation of a survey report is not covered in most academic programs and is seldom adequately explained in the apprenticeship period prior to professional licensure. Accordingly, many surveyors seek guidance when preparing a survey report.

There is no mandatory format for survey reports. Contents often vary depending on the whim of the surveyor. Most surveyors agree that the survey report should provide an explanation or rationale for the surveyor's opinion. (The surveyor's opinion is summarized on the plat and narrated in the description.) Accordingly the survey report should, at the very least, provide a clear, complete, and concise basis for the surveyor's opinion on the location of the corners and boundaries that are shown on the plat.

The following example format incorporates five parts. First, it summarizes historical boundary information from the client's and adjoiner's chain of records. Second, it provides a summary of information discovered in the field. Third, it provides both rational and reasonable arguments leading to a logical basis for an opinion. Fourth, it states the rules of construction that control. Finally, it states the present monumentation of the corner.

Consider the following example, where monumentation that appears to be the original monumentation was found:

CORNER 3



Corner three is the northwesterly corner of the client's parcel. The corner was created during a division of property by Owen King in 1903 and first described in deed book 343, page 19 (operative conveyance). The corner was marked and described by a "blazed sugar maple" in the aforesaid deed and subsequent deeds in the chain of records. In 1968, the description of the corner monument was changed to be a "maple stump" described in deed book 1832, page 129. Later deeds also call for a "maple stump," including the present conveyance.

Adjoining records starting in 1912, as first cited in deed book 384, page 321, call for a "sugar" to mark the corner.

A diligent search in the area revealed a badly decomposed 38 inch diameter Sugar Maple stump. A 12 inch hemlock tree with three 45 year old blazes face the sugar maple stump. (The age of the blazes was determined by a boring into the tree.) The hemlock is 9.8 feet from the stump.

The maple stump marks the corner location. The maple stump is the original maple based on the appearance, size, species, and the apparent age of the stump. The presence of blazes, age of blazes, and orientation of the blazes on the hemlock tree strongly suggest the hemlock is a witness to the maple's location. Finally, there is reasonable correlation between record and retracement measurements from other corners measured to the stump. A reasonable and rational analysis of the information lead to the logical conclusion that the stump is more likely than not the remains of the "blazed sugar maple" cited in the operative deed.

The rules of construction fix the location of the corner at the position of the original monument cited in the operative conveyance (*i.e.*, the maple stump).

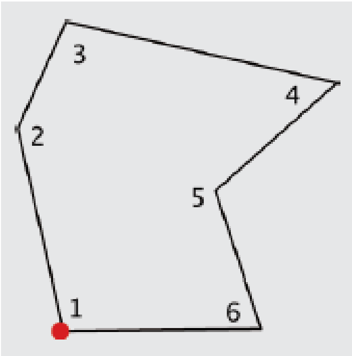
A 5/8 inch diameter rod, 3.5 feet long was placed in the middle of the stump.

>> By Knud E. Hermansen, PhD, LS, JD

The rod is topped with a yellow, plastic cap containing the surveyor's name and license number.

■ The following is an example narrative in the survey report where monumentation is found that is not the original monumentation but accepted as marking the corner:

CORNER 1



Corner one is the southwesterly corner of the client's parcel. The corner was created during a division of property by Owen King in 1903 as first described in deed book 343, page 19 (operative conveyance). According to the operative conveyance, the corner was marked by a "post." Subsequent deeds in the chain of records continue to cite a "post" to mark the corner.

Adjoining records starting in 1912, as found in deed book 384, page 321, call for a "cedar post" to mark the corner.

A diligent search in the area using a metal detector revealed a 1-inch iron pipe buried 0.2 feet under the ground surface. The pipe is surrounded by stones ranging in size from 5 to 10 inches. Rusted remains of a barbed wire fence were discovered on or near the pipe extending toward corner 2 and corner 6. Remains of the fence found in living trees indicate the fence was erected more than 70 years previously.

The westerly neighbor, Julia Smith, who has lived on the neighboring property for 52 years, states the stones were known to mark the common corner all the time she owned the property. She states that her father, who owned the property previous to her ownership, believed the stones marked the corner.

Long standing and uncontested acceptance that an object marks a corner suggests that the object does in fact mark the original location of the corner. Furthermore, given the close proximity of the dates when the post was placed and when the fence was erected, it is a logical and reasonable assumption that the builder(s) of the fence saw the post and built the fence to conform to the location of the post. Therefore the fence serves as evidence of where the post formerly stood. There is reasonable correlation between the record measurements and retracement measurements from other corners to the stones.

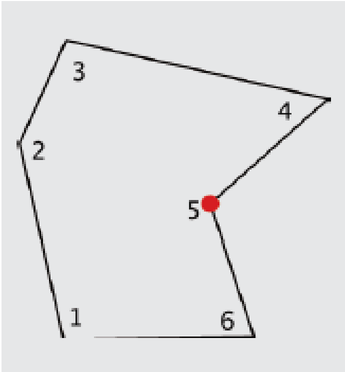
Based on the long standing acceptance of the stones as the corner, close conformity to long standing possession lines, and reasonable correlation between record and retracement measurements from other corners make it more likely than not that the pipe and stones are in the former position of the "post" or "cedar post."

The rules of construction fix the location of the corner to be the position of the original monument ("post") cited in the operative conveyance.

A 5/8 inch diameter rod, 3.5 feet long was placed in the middle of the pipe and stones. The rod is topped with a cap containing the surveyor's name and license number.

■ Finally, consider the following example where no reliable monumentation is found and the corner location is fixed by other methods:

CORNER 5



Corner five is along the easterly side of the client's parcel. It was created during a division of property by Ebenezer Liam in 1878 as described in deed book 103, page 78 (operative conveyance). The description calls for a "post" in the aforesaid deed. Subsequent deeds in the chain of records continue to call for a post to mark the corner.

Adjoining records starting in 1881, as found in deed book 103, page 102, also call for a "post" to mark the corner.

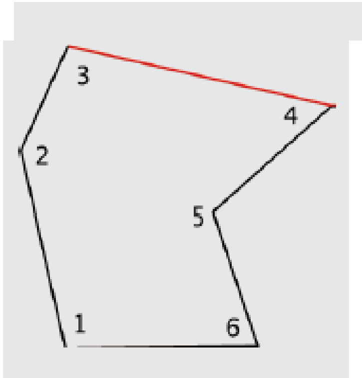
A diligent search in the area failed to reveal the remains of a post or any indicia of possession that would reasonably conform to the record boundary. A 7/8 inch diameter reinforcing rod protruding 1.4 feet above ground level was found in the area. The reinforcing rod appears to be recently set. The person who set the rod is unknown.

The location of the post was reestablished using record measurements measured from undisputed corners after correction for magnetic change. The former position of the post is established S17° 20' 30"E 12.32 feet from the rod found.

A 5/8 inch diameter rod, 3.5 feet long was used to mark the corner. The rod is topped with a yellow, plastic cap containing the surveyor's name and license number.

■ Boundaries can be similarly dealt with in the survey report. Consider the example where a blazed line is the best evidence of the record boundary as the following example shows:

BOUNDARY 3-4



Boundary 3-4 is along the northerly side of the client's parcel. It was created during a division of property by William Long in 1912 as first described in deed book 408, page 523 (operative conveyance). The description calls for the boundary to be *"South 77 & ½ degrees East a distance of 16 and ½ rods along a wall and blazed line."* Adjoining records continue to cite the aforesaid course.

The client's records starting in 1915, as found in deed book 410, page 92 cite the boundary to be *"North 76° West, 16 rods..."*

A diligent search in the area revealed the remains of a stone wall beginning and extending 120 feet from corner 3 toward corner 4. Two maple trees (30 inch diameter and 25 inch diameter) with blazes were found between corner 3 and corner 4.

As a result of the call for *"along a wall and blazed line,"* the boundary follows the wall and those trees with blazes. The adjoining boundary calls for a straight line and causes minor gaps and overlaps where the wall and blazes depart from a straight line.

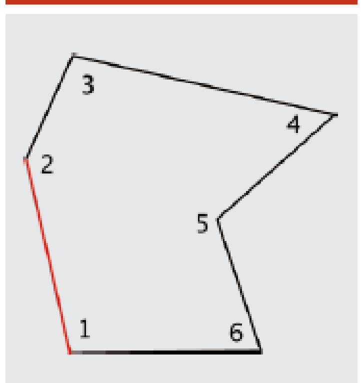
The departure of the wall and blazes from a straight line between corners 3 and 4 are less than two feet.

The straight-line retracement measurement for boundary 3-4 is S65° 12' 32"E, 266.57 feet. The retracement direction is based on true north. The record directions are based on magnetic north. The declination is approximately 11°E.

Given the lack of skill and formal training in many early surveyors, unsophisticated equipment employed by the surveyor, lack of precision, and change in magnetic north over time, there is reasonable correlation between record and retracement measurements.

The next example explains a boundary that is not governed by other calls or lines of occupation:

BOUNDARY 1-2



Boundary 1-2 is along the westerly side of the client's parcel. It was created during a division of property by Owen King in 1903 as first described in deed book 343, page 19 (operative conveyance). The description calls for the boundary to be *"North 17 & ¾ degrees West a distance of 12 and ½ rods."* In 1968, the boundary was cited to be *"North 17 degrees 15 minutes West, 204.6 feet"* as described in deed book 1832, page 129. Subsequent deeds cite the last mentioned course.

Adjoining records starting in 1912, as first cited in deed book 384, page 321, call for *"North 18° West, 12 rods."*

The boundary was fixed to be a straight line between the corner monuments.

The remains of a fence begin at each corner and meander on or near the record boundary. The fence departs from the boundary by as much as 2.6 feet as measured perpendicular from a straight line between corners 1 and 2. (See discussion on occupation lines in this report.)

The retracement measurement between corner 1 and corner 2 is North 6° 56' 33"West, 204.83 feet. The retracement direction is based on true north. The record directions are based on magnetic north. The declination is approximately 11°E.

Given the lack of skill and formal training in many early surveyors, unsophisticated equipment employed during the original survey, lack of precision in the measurements, local magnetic attractions, and change in magnetic north over time, there is reasonable correlation between record and retracement measurements.

As the previous examples are meant to illustrate, the report attempts to combine relevant background information, along with field and record information, coupled with reasonable assumptions that can be used to form a logical and rational opinion based on the rules of construction.

Starting with the above examples, a practitioner can modify the language to fit their own style of writing and conform to the facts and information found in the records and at the site.

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Preparing a Survey Report

Encroachments, Overlaps and Gaps

In my previous article [February 2008], I discussed reporting opinions on the location of corners and boundaries. In this article, I will discuss how surveyors can communicate encroachments, gaps and overlaps in a survey report.

Major encroachments and overlaps are ordinarily shown on the plat to ensure clients are made aware of them and emphasize their importance and impact on the client's property. Yet, there are numerous situations where encroachments, overlaps, and gaps can only be reported or reported in detail in a survey report or separate communication to the client.

Typically, gaps do not need to be reported on the plat if they can be identified and explained in the survey report. Gaps often provide the client with an opportunity to perfect title to the gap in their favor. Hence, there is some motivation to keep the presence of a gap confidential. It is much easier to keep information on a gap confidential when it is identified in the survey report rather than disclosed on a plat–especially where the plat has to be recorded or will be given to third parties.

Overlaps and encroachments are often identified only in reports where the encroachment or overlap is so minor that reporting their disclosure on a plat would give the encroachment or overlap more credibility or cause the client more concern than warranted by the situation. Given the litigious nature of many people at this period in time, all encroachments and overlaps, no matter how minor, should be reported to the client. Yet, common sense and prudence suggest that the reporting should be done in a manner that will not cause undue concern or panic with the client.

Some typical situations often encountered by surveyors where the encroachments or overlaps are minor include: 1) The neighbor's utility line, extending between the neighbor's house and pole at the road, crosses a corner of the client's property. 2) One deed calls for a straight line and the adjoining property calls for the boundary to follow a feature such as a fence, wall, ridge, stream, etc., and the feature meanders back and forth across the straight line by some small amount. 3) A minor or temporary encroachment such as a garden plot, burn barrel, paper box, etc., is across the boundary.

In some cases, a client may want (or the surveyor believes) the encroachment, overlap, or gap should remain confidential. While surveyors do not have the privilege of keeping communications confidential, it is far easier to keep information that is disclosed in a report confidential as opposed to the situation where the same information were to be shown on a plat– especially in jurisdictions where plats are required to be recorded.

This situation could arise where the client is discovered to be encroaching on the neighbor or have the junior title in an overlap. If the client is in possession of the overlap or the client is encroaching, the client may wish to perfect their title by adverse possession or prescription, in the case of easements. Even in cases where the client has a superior claim, the client may not always want to begin litigation, confront a neighbor, or make the neighbor aware of an encroachment or overlap simply because the client does not want or is not ready to begin a conflict with their neighbor.

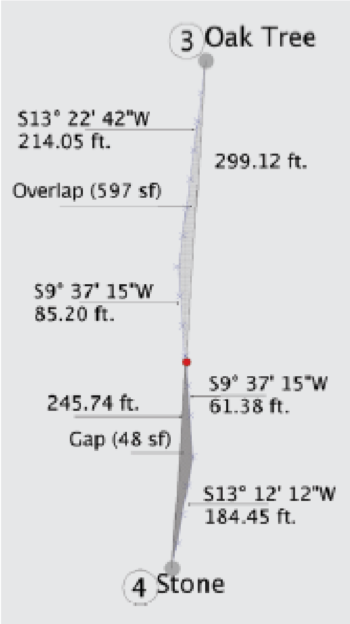
Finally, the surveyor may want to use the report to expand, explain, or discuss the encroachment, overlap, or gap that has been identified on the plat. A plat can become cluttered and lose its clarity if the surveyor places numerous notes and extensive explanations on the plat.

>> By Knud E. Hermansen, PhD, LS, JD

A useful format for disclosing encroachments, overlaps, and gaps is to: 1) identify the location, 2) describe the extent, 3) discuss the basis, 4) explain the ramifications, and 5) suggest one or more courses of action the client can take.

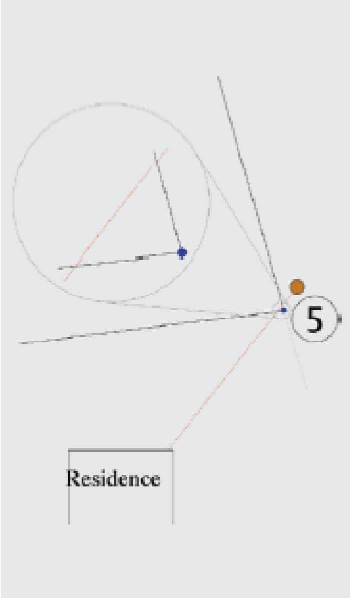
Consider the following examples:

OVERLAP & GAP, BOUNDARY 3



Between boundary 3-4 there exist an apparent overlap and gap as shown in the figure above. The overlap and gap result from your deed description for boundary 3-4 which states: *"...marked oak, thence S2 15'W, 543 feet to a stone..."* and your neighbor's description for the boundary which states: *"... planted stone, thence N2 30'E, 545 feet, following a fence, to a red oak..."* Your neighbor's deed was the first conveyance that was recorded without notice of an earlier conveyance from a common grantor and may have senior title to the overlap. The title to the gap is more likely than not retained by the common grantor and resides with the common grantor or his assigns or successors-in-title. While these gaps and overlaps are minor and would not concern me if I were in your stead, you may take action to meet your own satisfaction. If you have questions on the ramifications or dealing with this gap or overlap, you should consult an attorney experienced with real estate problems.

ENCROACHMENT AT CORNER 5



An apparent encroachment exists near corner 5. The figure locates and describes an encroachment by a utility line benefiting your neighbor's residence. The apparent encroachment is composed of a utility line going from utility pole #315-5 (along Parker Avenue) to the northeast corner of the neighbor's house.

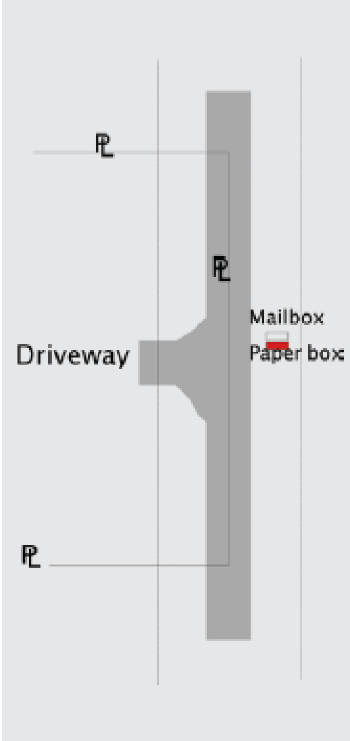
A diligent search of the public records failed to reveal an easement or recorded license for the utility line. A letter to the utility company seeking information on the line has gone unanswered.

If the utility line has or is allowed to exist for a time period in excess of 20 years, the neighbor may have the right to maintain the utility line without license or permission.

At this time, it is not known if verbal permission was given to construct the line (*i.e.,* parol license). The apparent encroachment is minor. Asking the neighbor to remove the utility line may cause the neighbor significant expense and/or initiate a dispute with the neighbor.

Should you wish to pursue this matter or have questions on the apparent encroachment's ramifications to your title, you should consult with an attorney experienced with real estate problems.

ENCROACHMENT PAPER BOX



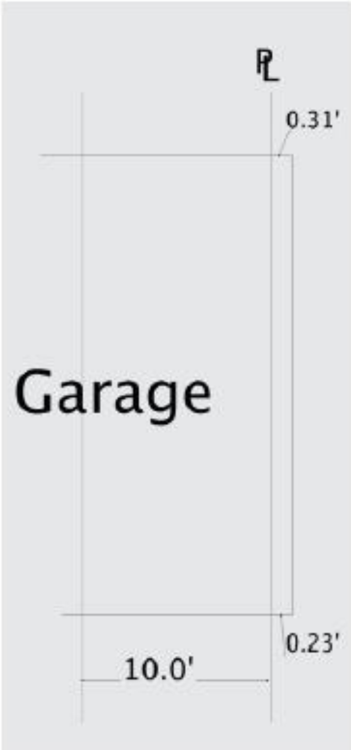
Your paper box is located next to your mailbox across from your driveway on your neighbor's property. Records indicate that your title only extends to the center of the public road. Court decisions have suggested that private property permanently placed within the public road easement is only allowed in limited cases by permission of the public or where the owner of the private property owns the fee title (or has permission of the fee owner) and the permanent fixture does not prevent the safe use of the easement by the public.

This situation is so common as to seldom be noticed or attract the attention or ire of the neighbor.

My experience suggests that this situation may be safely ignored in almost all cases. The location of the paper box, maintained long enough (*i.e.,* 20 years), will likely ripen into a right subject only to the public easement.

If you have questions on the encroachment of your paper box on your neighbor's property, you should consult with an attorney experienced in real estate matters.

ENCROACHMENT GARAGE



Your garage encroaches onto the neighbor's property as shown in the diagram. In addition, the garage is within the building setback area established by the current zoning for your municipality. I have no information on how long your garage has existed or under what conditions it was built in its location. These could be relevant factors in determining a course of action to take.

In regard to the possible encroachment of the garage onto your neighbor's property, experience suggests you have three options: 1) First you can do nothing. If the encroachment is maintained long enough under the right conditions, the right to maintain this encroachment on your neighbor could ripen in your favor. 2) You can remove the encroachment from the neighbor's property. 3) You can obtain your neighbor's consent, license, easement, or title to maintain the encroachment. You should consult with an attorney before taking any action or non-action suggested above.

The building setback distance is established by the town zoning ordinance. Building setback distance is established to prevent fire from spreading through a neighborhood. Many structures that existed prior to the enactment of the ordinance are exempt. Your structure may be exempt depending on its age or a previous owner may have obtained a variance. Additional information will be required in order to determine if the structure is exempt from current setback restrictions.

Structures that are illegally located within the building setback are subject to removal, fines, or both. In some situations, a nominal fine or obtaining a variance will put aside the problem if it exists.

Ordinarily, zoning infringements are not discovered until the transfer of the property (if then). My experience suggests that town enforcement of zoning violations is passive rather than active. In other words, violations are only enforced when brought to the attention of the municipal enforcement agent. In most cases, reporting is done by a disgruntled neighbor.

You should consult with an attorney experienced in real estate regarding this situation.

As the examples illustrate, the report can provide the client with considerably more information than portrayed on a plat.

Surveyors that commonly use survey reports often spend a great deal of time preparing a good explanation for the first time the situation is encountered. Thereafter, the surveyor can reuse much of the narrative previously written when the same or similar situation is encountered in the future. Accordingly, the surveyor that has another client with a structure encroaching on the neighbor will be able to quickly adapt the former explanation into the survey report for the present client.

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Preparing a Survey Report

Part 3: Service Limitations

This is the third article in a series of articles suggesting formats and contents of a survey report. In the first article [Feb. 2008], I discussed reporting an opinion on the location of corners and boundaries. In the second article [Mar. 2008], I discussed how surveyors could communicate encroachments, gaps and overlaps in a survey report.

The survey report is an excellent media to set forth and explain in more detail the limitations of the surveying services. This section of the survey report, once written for one client, can be used in survey reports for subsequent clients with minor adjustments for the current services.

Ordinarily the scope of services is set forth in the contract. Conversely, the limitations are sometimes stated but often implied from the scope of services set forth in the contract. However, where the client is a layperson, simply stating what will be done during surveying services does not necessarily leave the client with a clear understanding of what was not done.

Stating the limitations of the surveying services in a survey report provides unlimited space to expand and explain limitations to the surveying services. This section will educate the client on limitations to the services that were performed on the client's behalf.

Many surveyors attempt to put limitations of surveying services on the plat (*a.k.a.*, CYA notes). Too many notes or notes that are too wordy clutter the plat with writing and cause the plat to lose the focus and clarity that is an advantage of a plat. The old saying that a "picture is worth a thousand words" becomes meaningless when the picture includes a thousand words.

The general format for preparing commentary on surveying service limitations is to introduce the limitations by stating the purpose for the surveying services that were performed. This in turn will lead to the discussion on the limitations to the services.

Consider the following example of an introduction prefacing the limitations:

Preamble

You have indicated that the purpose for requesting surveying services was to locate the boundaries of your property in order to define the limits of a proposed timber harvest. Accordingly, the services provided have resulted in a boundary retracement survey. A boundary retracement survey is a reasonable opinion on the location of your boundaries communicated in the form of a plat and marked on the ground in conformance with mandatory standards promulgated by the board of licensure. Copies of the standards can be obtained by following the appropriate links found at http://www.lsrp.com/statinfo.html.

As in any professional opinion, there can be no guarantee of absolute certainty as explained in *Broyles v. Brown Engineering Co., Inc.* 151 So.2d 767, 772, 275 Ala. 35, 39 (1963).

> "If a civil engineer is employed to locate a government land line between tracts or areas, we submit that he would not impliedly insure location of the correct line. In determining this location, it is commonly known that his [opinion] is dependent on obtaining a correct starting point for his survey—a point that is often obscured or is evidenced by misleading or false marks—marks that are made by someone else. An engineer under such circumstances cannot ordinarily be expected to guarantee or insure definite and positive results."

>> By Knud E. Hermansen, PhD, LS, JD

The example of the preamble discloses an important limitation of surveying services–there can be no absolute guarantee of perfection for most surveying services.

The general form and content for explaining limitations would include the: 1) identity of the limitation, 2) explanation of the limitation's relevance, 3) statement regarding the ramifications of the limitation, and 4) advice to the client on dealing with the limitation.

Limitations that may be discussed in the survey report fall into six categories, with considerable overlap between the categories.

The first category of limitation includes those limitations that are normal and a reasonable part of the surveying services that were performed. These limitations are often explained in the surveying report because the client or third parties may not know they are reasonable and a normal part of the surveying services.

Consider the following two examples of common limitations that often apply to a boundary retracement survey. These limitations often go unreported to the client, leaving the client under a misconception of the reliability of the surveying services:

Monument & Corner Identification

The relevant deed descriptions call for some of your corners to be marked by stones, trees, posts, or other natural materials that are not susceptible to detection by electro-magnetic devices. These materials often decay, are lost to fire, vandalism, logging, construction, or become obscure in the landscape. In some cases the objects are covered by vegetation detritus or snow. As a result, the accurate identification of your corner monument or its former position is often difficult or impossible given the lack of reliable information, evidence lost to time, decay, or deceit; along with cost and time constraints fixed for completing the surveying services on your behalf. Every attempt was made, using the evidence available and adhering to reasonable standards under the circumstances, to locate the former position of the monument. Yet, another competent surveyor, using the same information, may come to a reasonable but different or conflicting opinion. Accordingly, you are advised to exercise some discretion when cutting timber or improving your property up to the boundary that is now marked.

Public Record Research

Public record research was conducted to identify and gather boundary location information such as bearings, distances, and monuments that define the limits to your property. The conduct of the research met mandatory surveying standards or those standards that a reasonably competent surveyor would be expected to comport with in the same or similar circumstances for the locality where the property is located. Accordingly, the research that was conducted is not without potential problems or weaknesses.

Records are indexed by past and present owners of your property making the research tedious and time consuming. Misspelled names, multiple parcels owned by a person in your chain of title, inconsistent procedures for indexing corporate names, failure to record deeds, title passing by probate or intestacy, deeds indexed outside of the expected time period of the index, records that have deteriorated to the point they are unusable, incomprehensible handwriting, faded writing, improperly indexed records, ancient deeds stored in inaccessible locations or unavailable, poor quality copies of the original, deed books misplaced, and so on, make a complete and comprehensive search impossible to complete accurately, costly to perform, and time consuming.

As a result, errors in the recent boundary description may be undetected, historical easement conveyances hidden, and relevant boundary information not recovered, to name but a few.

To overcome these obstacles, considerable time and fees will be required. In the vast majority of cases, the additional time and cost required will not be worth the additional information, if any, that would be discovered. Nevertheless, it must be recognized that these circumstances do pose a risk of inaccuracy to both an attorney's opinion on the strength of your title and my opinion on the location of your boundaries.

Additional affirmative insurance coverage can sometimes be obtained to indemnify you against losses incurred from one or more of these happenstances.

> "The old saying, 'A picture is worth a thousand words,' becomes meaningless when the picture includes a thousand words."

Similar explanations falling in this category of limitation would include researching private records, examining municipal records for utilities and road easements, easements recorded that predate the boundary information, the availability of relevant records held in private ownership, the change in magnetic bearings over time, uncertainty in measurements due to the imprecise equipment originally used along with the lack of skill and education employed by the original surveyors, and the failure to perform a forward search in the public records, to name a few.

A second category of limitation that can be discussed in the survey report are those limitations that may be reasonable but mistakenly believed by the client to be provided or performed by the surveyor. For example, stating that surveying services will consist of boundary retracement services often cause some clients to believe that all boundaries will be located such as wetland boundaries, 100 year flood plain boundaries, set-back boundaries, and easement boundaries to name just a few.

Consider the following example illustrating a limitation explanation falling in this category of limitation:

Wetlands
The identification and delineation of wetlands were not a part of the boundary retracement services provided. Federal and state legislation has defined and established restrictions for the protection of wetlands. The presence of wetlands on or near your property will limit or restrict the use and improvement of your property. If you are contemplating the development or improvement of your property you would be wise to retain the services of a specialist to identify wetlands and delineate the boundaries to the wetlands. For a fee to be negotiated, this firm will map the delineation of the wetlands accomplished by a specialist. You should consult with your state environmental protection agency for a more detailed explanation on identifying wetlands and laws meant to ensure their protection.

A third category of limitation that may be placed in the survey report are explanations on limitations resulting from common misrepresentations of surveying services communicated to the client by other professionals. A common example is the misconception the client often has that the mortgage loan inspection is a survey. This misconception is widespread and is in caused in part by the fee for the service being listed as a "survey" cost on the HUD 1A closing form. Another common misconception is that the surveyor who has performed a record search will also have examined the title to the property.

No Title Opinion
The services provided do not include and should not be construed to be an opinion on the title. A record search performed as part of the surveying services does not substitute for a title search and a title search by a title abstractor does not substitute for a record search by a surveyor. While boundary information is often found in title documents, the examination of the same document by the title examiner and surveyor is different. Title abstractors look at the parties, interest conveyed, the intent of the parties, recital, type of deed, consideration, dates of execution, etc. A surveyor looks at the description of the property and other spatial data bearing on boundaries or use of the land (e.g., easements). A poor description often passes good title while a good description may not necessarily pass good title. Often boundary information is found in plats, miscellaneous records, neighboring deeds, etc. These records are seldom examined by a title abstractor. Furthermore, title abstractors usually limit the time period encompassed by a title search back 40 years or less from the present time period. On the other hand, surveyors will often search back in time for a century or more to the first description of the boundary in order to get original information and identify omissions or blunders in the current boundary description.

As a result of the record research, an opinion on the record boundary is presented. An opinion on your title must be obtained from an experienced real estate attorney.

Limitations that arise as a consequence of the client's intentions comprise a fourth category of limitation that may be discussed in the survey report. This category includes a discussion of services that the surveyor knows should be considered by the client but the surveyor can not or does not want to perform these services for the client.

For example, a surveyor that is performing a boundary survey for the client who intends to sell a lot, may want to expressly advise the client that the surveying services do not include services that the client should obtain before conveying the lot. These services might include a site evaluation for the suitability of an on-site septic system, soil survey, engineering design, public road access permit, invisible or "dormant" easements, zoning constraints, and subdivision restrictions or limitations, to mention a few.

On Site Septic System
The surveying services performed on your behalf did not include a site evaluation for the placement of a septic system. The construction of an on-site septic system is required for all residential property not able to be served by a public sewer. Before the construction of an on-site septic system can commence, a site evaluation must be done by a person licensed in this state to perform septic system evaluations. After the site evaluation, a permit must be sought and issued from the appropriate agency. This service should be completed prior to conveying the lot. Failure to perform this service could result in creating a lot that may not be suitable for residential construction.

Please consult with your local code enforcement officer if you have questions regarding on-site septic systems and what individuals are licensed and able to perform these services in your area.

" . . . experience has shown that surveyors face a great potential for liability for not communicating with the client, not for communications that the client chooses not to read."

A fifth category of limitation that may be covered in the survey report are common problems that often give rise to expensive litigation involving the surveyor through no fault of the surveyor. Many of these situations appear to have arisen through legislation meant to protect the environment, buyer, or government. Closing agents and lending institutions may not know about the legislation, understand it, or have designated another professional to check on the application of the legislation to the property. More often than warranted, the surveyor discovers they are the ones designated by the closing agent to check on the matter but only after the surveyor has completed the surveying services. Right or wrong, the surveyor is treated like the grade school teacher who is expected to spot child abuse among the students in her class even though she has never been trained as a social worker.

Examples of this category of limitation include warnings of inchoate mechanics liens; underground utilities, invisible or "dormant" easements, grave sites, significant archeological sites, historical structures, significant or endangered habitat/species, malfunctioning septic systems, zoning violations, and hazardous waste, to name a few.

Underground Utilities

The surveying services did not include the identification, detection, or location of underground utilities on your property. Disturbing underground utilities may result in hefty penalties and damages you will be liable for. Before digging or excavating on your property you are required to check for the presence and mark the location of underground utilities.

Before excavating or digging, call 1-888-digsafe.

Client specific limitations comprise the sixth and final category of limitation that may be discussed in the survey report. Sometimes the client is the surveyor's own worst enemy, preventing the surveyor from properly and successfully completing the surveying services on behalf of the client in an efficient and timely manner.

Situations falling within this category often arise, yet vary greatly. In one situation a surveyor may be asked to rely entirely on the research performed by someone else (a non-surveyor) or limit the research to a certain time period regardless of where the evidence might lead. Surveyors have been asked to start and complete surveys in the winter where deep snow make monument detection difficult, if not impossible. There are numerous clients who insist on starting logging or construction before the survey is complete thereby chancing the destruction of field evidence or making the surveyor's field work much more difficult and costly. It is common for surveyors to be asked to perform ALTA/ACSM land title surveyors in a restricted time period, yet the record information is delivered just before the documentation is due from the surveyor. Many surveyors can share the experience of being asked to survey for a client who has already inflamed the neighbor (indeed, neighborhood) by marking the (supposed) common boundary and then asking the surveyor to verify the client's opinion (making the surveyor appear to be either a "hired gun" for the client or angering the client to the point payment for services is not forthcoming when the client's opinion is shown to be wrong).

Road Width

In order to reduce the fee for surveying services, you have specifically requested that I not examine the town records now archived at the state capita. Tedious and time-consuming research is necessary to determine if the public road bordering your property is described in these historical municipal records. This research would be necessary to determine if a width different from the presumed width of three rods (set by common law) should be used. Public road information is commonly located in the historical town meeting minutes of the current town or the municipalities that are a predecessor to the current town. In my experience, approximately 40% of public roads have a width more or less than three rods (49.5 feet). The most common widths, aside from three rods, are two rods (33 feet) and four rods (66 feet). It is not unusual to have a width of six rods (99 feet) for a public road. In one case, a road width of eight rods (132 feet) was created by a municipality. The width of the public road could affect the building set back location and the area that may eventually be devoted to use of the public thoroughfare without compensation to you for damage to your property that is located in this area.

To avoid creating title problems when developing your property, you are advised to have the necessary research performed, obtain affirmative title insurance coverage (if possible), presume a worst case scenario when developing the property, or consult with an attorney for further options.

While a discussion of limitations in the surveyor's report could never cover all limitations, it is wise to try and cover as many limitations as possible. Undoubtedly, the length of this section precludes many clients from reading it. Nevertheless, experience has shown that surveyors face a great potential for liability for not communicating with the client, not for communications that the client chooses not to read.

Knud Hermansen is a professional land surveyor, professional engineer, and attorney at law. He is a professor in the Surveying Engineering Technology program and the Construction Management Technology program at the University of Maine.

Preparing a Survey Report

Part 4: Frequently Asked Questions

This is the fourth article in a series of articles suggesting formats and contents of a survey report. Previous articles dealt with opinions on the location of corners and boundaries [Feb. 2008]; encroachments, gaps and overlaps [Mar. 2008]; and limitations of the surveying services [Jun. 2008]. This article will discuss using a portion of a survey report to deal with Frequently Asked Questions (FAQs) from the client.

Surveyors that choose to include this section in a survey report will often include some of the contents that would have been covered in other sections of the survey report.

The reason for including this section is to anticipate questions that a client might ask the surveyor. It does not take much time in practice for surveyors to hear the same questions from different clients. Surveyors can use a section of the survey report to anticipate and answer questions the client may have in regard to the services performed.

Consider some frequently asked questions that are common on almost all boundary retracement surveys.

One frequently asked question is why there is a difference between the record or deed distances and the retracement distances shown on the plat.

Why are there differences between the record distances and retracement distances?
When comparing the boundary distances stated in your deed with the distances shown on the plat, you will discover differences between the measurements. Differences are common, especially when there is a long period between the last survey and the current survey. In fact, it would be unusual not to have differences. The differences usually arise from one or more of the following sources:

Skill The distances stated in your deed were measured by individuals that more likely than not lacked training and experience in making measurements. It was not uncommon for surveyors to rely on local help, such as the client and a neighbor, to handle the chain or tape to perform the measurements. Procedures necessary for precise measurements were ignored or not known.

Uncorrected Errors Many errors that are now taken into account when measuring distances were ignored or not accounted for in the original measurements. For example, it was common for chains or tapes to be laid on the ground or measured along the slope rather than elevated so the tape is horizontal. Tape corrections were ignored. Links in the chain became worn and stretched without compensation made for the stretched links.

Equipment The equipment used by the original surveyors was often unable to measure the distances as precisely as current equipment. A chain was composed of links no smaller than 0.66 feet (7.92 inches). Often the surveyor measured to the nearest half a rod (approximately 8 feet). In some cases, no equipment was used and distances only estimated–often occurring when crossing wide streams in the wintertime or bogs in the summertime.

Similar to the explanation for differences in distances is the question that often arises seeking an answer for the difference between record bearings and retracement bearings.

Why are there differences between the record bearings and retracement bearings?
The bearings shown on the plan differ from the bearings stated in your deed description. The lack of skill and imprecise equipment (compared to the present equipment) explained previously

>> By Knud E. Hermansen, PhD, LS, JD

for the differences in distances account for some of the difference between bearings. In addition, the change in magnetic north over time also accounts for some of the difference. Local attraction (localized magnetic pull) also accounts for some difference. However, the biggest difference results from the dissimilarity between true north (aligning with the axis of Earth's rotation) that is used as the basis for the bearings in the current survey and magnetic north used as a basis for the bearings in the deed. This difference is known as the magnetic declination. The magnetic declination is approximately 20 degrees for the location of your property and at the time that the original survey was performed.

Another frequently asked question that is similar to the previous questions is why there is a difference between the area stated in the deed and the area shown on the plat.

Why is there a difference between the deed area and area shown on the plat?
Area is calculated from the distances and directions. (In some cases, the area cited in the deed was estimated rather than calculated.) Therefore, differences between retracement measurements and record measurements will result in a difference between the area stated in the deed and the area shown on the plan. In a few cases, only the net (neat) area was shown rather than the gross area. The net area would exclude the area under roads, easements, bogs, etc. In other words, only the area that could be used for usual and practical activities was shown.

Another topic drawing questions from the client concerns the boundary shown on the plan versus what the client owns. Often the surveyor discovers that possession or use of the client's property (or on behalf of the client) does not conform to the record information. Clients often have difficulty understanding that the extent of their title and rights do not always conform to the boundaries set forth in their deed.

Aren't the boundaries shown on the plat also the boundaries to the property that I own?
The boundaries shown on the plan represent the surveyor's opinion on the location of the record or deed boundary. These boundaries may not conform to your ownership boundaries. Your deed is only evidence of your title, not proof of your title. Various legal doctrines such as acquiescence, adverse possession, etc. may result in the location of the ownership boundary residing in a different location than the record or deed boundary. In some cases, a common grantor mistakenly conveyed part of the same property to different people. These are some reasons why title insurance is often recommended.

Clients will often question why the surveyor shows fences, areas of use, features, etc., when the client wanted only a boundary retracement survey (that is, only their boundaries shown).

Why does the plat show fences, trails, roads, utility lines, and other features or areas of use?
Use, occupation, or possession that does not conform to the record boundaries or deeds may give rise to certain adverse rights or conflicting title that is not reflected in the records (or records discovered within the time frame of the research). In some cases where the use or occupation is within the boundaries, the structures or use violates building set back distances or other zoning restrictions. As a result of the ramifications resulting from occupation, use, or possession, the visible occupation or use is shown on the plat.

Common problems encountered by the surveyor often result in common questions that can be answered in this section of the survey report.

What should I do when (if) my neighbor's surveyor does not agree with the survey that was performed for me? (that is, the common boundary shown on the plat is different from where the neighbor's surveyor shows the common boundary)
It is not unusual for two surveyors looking at the same information to arrive at different opinions. Conflicting information, the disappearance of boundary evidence, and so on make an opinion anything but certain. Any potential boundary dispute must be discussed with your attorney. Experience indicates that you generally have four choices: 1) You can accept the neighbor's claim. While this choice may result in the possible loss of some title or rights, the loss may not be worth the cost to settle the dispute. 2) You can talk to your neighbor and negotiate a compromise over the difference. The compromise may be as simple as splitting the difference or paying the neighbor to recognize a particular boundary. While negotiation is often successful, attempts at negotiation or compromise will sometimes result in heated words and increased animosity causing what the negotiation was meant to prevent–costly litigation. 3) You can litigate with your neighbor and attempt to have the court determine the correct boundary location. Litigation costs can exceed $10,000 without guarantee of success. The complexities of boundary litigation often overwhelm a judge or jury. Decisions are made despite the fact that the judge or jury are confused. More people than not are frustrated by the cost and slowness of litigation, even those that are successful. 4) You can agree with your neighbor to submit the contentious difference to alternate dispute resolution (ADR). This option may include mediation or arbitration. Arbitration is equivalent to hiring a judge (or third surveyor) and agreeing to be bound by that decision. Hiring a judge or third surveyor is often far less expensive than the normal litigation process and is usually much quicker.

There are numerous other topic areas that can be dealt with in this section. Consider a few of the common questions heard over 35 years of practice:

- Can I replace the monuments you set with other objects?
- Can I put a fence on the boundary you marked or do I have to keep it back from the boundary?
- Can I hammer the pins you set so the entire length of the pins are below the ground surface?
- Will you know if the corner pins are moved?
- If the pin is removed later, do you replace them for free?
- Should I replace the ribbon that you have hanging around my property?

- How can I maintain the visibility of my corners and boundaries?
- Why did the survey cost so much, you were only surveying for a couple of hours?
- I had a title search done when I bought the property, so why do you have to perform research too?
- How come two surveyors can't agree on the same location?

> **It does not take much time in practice for surveyors to hear the same questions from different clients.**

- Should I record my plan?
- Do I have to record my plan?
- Can I cut the trees that are on the boundary?
- Why did you have to cut some of the vegetation on my property?
- Can I get more plans later if I want them?
- Can I use this plan to subdivide my property later?
- How long is this survey good for?
- Why did you put (that ugly) orange paint on my corner monuments?
- Should I paint the blazes on the trees that are around the corner monument and along the boundary?
- Is this plat all I need to develop my property?
- Who else will know about the information on the plan?
- If I record my plan will my neighbor be required to recognize the boundary shown on the plan?
- If you survey for my neighbor, will I get some of my fee back?

Not all of these questions are necessarily appropriate for the contents of the survey report. There are many other questions that can be added to this list. The point is, this section of the report can be used to answer common questions and educate the client about the services provided and the boundary that was reestablished.

Once the surveyor has developed a good written response to a common question, the response can be used again and again for other clients.

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Preparing a Survey Report

Part 5: Administrative Information

This is the fifth and last article in a series of articles suggesting formats and contents of a survey report. Previous articles dealt with opinions on the location of corners and boundaries [Feb. 2008]; encroachments, gaps and overlaps [Mar. 2008]; limitations of the surveying services [June 2008]; and frequently asked questions [Aug. 2008]. This article will discuss the administrative parts of a survey report.

Administrative information is provided, in part, for the client's benefit. More important is the need to refresh the surveyor's memory (or educate another surveyor) years or decades later. The administrative parts of the survey report are generally placed in the first part of the report and the last part of the report.

The first part of the report that covers administration matters is the cover of the survey report. The cover should include the type of surveying services (*e.g.*, Retracement Survey), the client's name, property location (*i.e.*, street, municipality, county, and state), project number (*e.g.*, 08-3-232), date or period when the services were performed (*e.g.*, June - July 2008), a statement of confidentiality if appropriate, edition number (*e.g.*, Edition 1), copy number and total number of copies (*e.g.*, Copy 1 of 4), and notice of copyright (*e.g.*, © 2008 Knud E. Hermansen). The surveyor's seal and signature can be placed on the cover, the last page, or both. Many of these items of information can be very important.

The statement of confidentiality should be used sparingly–only when and if the client demands confidentiality or the practitioner can reasonably assume the client would want information to remain confidential.

Some or all the information in this report is CONFIDENTIAL and may not be disclosed without the client's permission or proper legal demand.

The surveyor has no common law privilege of client confidentiality such as doctors enjoy with patients or lawyers enjoy with their clients. Confidentiality is limited and ordinarily established by contract with the client. In some cases demands for confidentiality from the client may prevent the surveyor from working for the neighbor or successors in interest. Designation of the report as confidential may limit or prevent the flow or sharing of information between surveyors that many surveyors enjoy.

On the other hand, a survey report is seldom recorded and can be used to notify and explain problems that the client may not want disclosed to third parties. For example, notice and details of a damaging problem can be moved from the plat to the report in order to protect sensitive information. Where important or sensitive information is placed in the survey report rather than on the plat, a note should be placed on the plat to couple the report to the plat.

Important and relevant information can be found in the survey report. Do not use or rely on this plat without reading the survey report.

Placing a note on the plat that refers to the survey report for important information does not require the surveyor disclose the survey report to individuals that have or obtain a copy of the plat.

The edition number is used to track changes made to published reports. If the surveyor has published the report and later makes changes and republishes the report, the edition number can be changed to identify the earlier from the later publications. Some surveyors prefer to use a date of publication rather than an edition number.

The surveyor can keep track of the copies by assigning a sequential number to each copy made of the report. Identifying the number of copies made and who received a particular copy is used to track the source of unauthorized copies. Since a surveyor derives a fee from the opinion he or she provides, unauthorized copies deprive the surveyor of a revenue stream the surveyor has a right to demand under copyright laws.

A copyright statement should be included on the front of the report. While a copyright notice is not required for copyright protection, it is wise to place a copyright notice on the face of the report since most people assume incorrectly that a document without a copyright notice can be copied without permission.

Finally, the surveyor may want to include his or her name and business address on the report cover. Opportunities for self-promotion should not be overlooked.

In the first section of the report after the cover, additional administrative information can be listed. This information is used to refresh the surveyor's memory years and decades later. Within

>> By Knud E. Hermansen, PhD, LS, JD

this section the following information can be included:

- **Client contact information** The client's address, telephone number, e-mail address, and other contact information should be listed.
- **Property location** If the property location is different from the client's address, the property location should be stated. Specific directions to reach the property can be provided.
- **Equipment and software** Given the rapid advance in technology, it is wise to list the equipment and software that were used during the surveying services.
- **Tax information** The tax parcel number of the client's parcel can be listed along with the zoning of the property.
- **Standards** Mandatory standards often change over time. The mandatory standards enforced at the time the surveying services were performed can be listed.
- **Personnel and titles** Personnel who helped perform the surveying services along with their title and responsibility should be listed. These individuals may have to help with recalling information that is required decades later. It also helps the individual support their claim of experience on the project when compiling their experience for licensure.
- **Contacts** People or firms that were contacted during the surveying services should be listed. This list could include neighbors, utility companies, municipal or state agencies, etc. In some cases, other surveyors that provided information can be listed and their contribution acknowledged. This could help show due diligence and remind the surveyor what efforts were undertaken to obtain relevant information.
- **Report distribution** The people who have received copies of the report and plat along with the number of the copy they received can be listed. This information will help identify the source of unauthorized copies.
- **Actions taken** A brief statement of the actions taken by the surveyor can be listed along with the time or date the acts occurred. This information can be helpful to show due diligence or refresh the surveyor's memory decades later.
- **Relevant documents** A list of documents relevant to the survey can be listed. The list can include the NGS quad sheet, deeds, field book or data file, and flood plain map.
- **Relevant datums** The relevant datums that were used during the surveying services should be listed. This would include the basis of the direction (*e.g.*, true, 2008 magnetic), distance datum (*e.g.*, geoid, grid), and coordinate datum (*e.g.*, geocentric, WGS-84).
- **Adjustment technique** Any adjustment techniques that were used should be listed such as the compass rule, least squares, etc.
- **Survey procedure & precision of measurements** The survey procedure should be noted and the precision of the measurements provided. This would include kinematic GPS, map grade GPS, traverse, radial survey, etc.
- **Declination** The declination should be stated. This would be helpful if the client wants to follow the boundary with a compass or help orient another surveyor to the historical direction.

"The surveyor has no common law privilege of client confidentiality..."

Other administrative information is often included in the appendices. Consider the following appendices that can be included in the survey report:

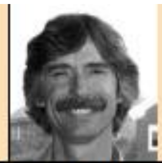
- **Notice to adjoiners** A sample of the letter sent to neighbors, utilities, etc., can be included as an appendix. This could show compliance with surveyor right of entry requirements and due diligence.
- **List of survey data** Preserving a list of coordinates, traverse measurements, solar observations, calculations, list of station descriptions, and other survey data in written form is helpful if there is subsequent work on or near the client's property some time in the future. Destruction of digital data or the obsolescence of digital reading software may make the survey report the only source for this data years later. It also provides a quick method for transferring survey data to another surveyor.
- **Unrecorded documents** Important letters, affidavits, unrecorded plats, historical field notes and other documents that were relevant to the surveying services performed can be included in the appendix. This arrangement makes it convenient if the survey has to be reviewed at a later date.
- **Records examined** A list of the recorded records that were examined can be very helpful years later. In some cases a flow chart can be included as an appendix to show the sequence of conveyances. Extracts of key parts of relevant descriptions can also be included.
- **Photographs** Small icons and a list of photographs can be included in the appendices. This can be helpful if the survey results have to be reviewed some time later.

With the completion of the administrative parts of the survey report, the report can be printed, copies made, bound, and distributed. It is usually wise to keep one copy for the office bookshelf. It may be kind to give a copy to the employee who was in responsible charge of portions of the surveying services so the employee can have access to the information and evidence of his or her involvement in the surveying services.

In closing, I hope these articles on preparing survey reports will provide some insight and aid in preparing reports. Do not be afraid to experiment and develop a style that fits your needs.

Knud Hermansen is a professional land surveyor, professional engineer, and attorney at law. He is a professor in the Surveying Engineering Technology program and the Construction Management Technology program at the University of Maine.

Reconnaissance



By Gary Kent, LS

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The Surveyor's Report

As noted by Alexander and Hermansen, the use of a "Surveyor's Report" is an excellent tool to convey relevant information about a survey to a variety of audiences (see sidebar). West Virginia and Indiana also recognize this fact; their respective state survey standards require such a document be prepared and provided to the client .

The essence of the concept of a surveyor's report is that seldom will the plat of survey alone convey all of the information that played a part in the resolution of a boundary. Depending on the exact content and manner in which the information in the report is presented, clients, attorneys, and title companies may all be interested in reading it so they can understand the results of the survey and the issues that affect the boundary lines.

West Virginia requires that the report include information on the weight given to conflicting evidence, encroachments, overlaps and gaps. Indiana requires the same, in addition to the inclusion of measurement related uncertainties.

What purpose is served by documenting and providing such information? When Indiana first adopted its administrative rule in 1988 requiring surveyor reports, one surveyor was heard to say "I know that my surveys are not perfect, but I can't tell my client that." Portraying or implying to one's client that a survey has no error is a rather precarious position to take. Talk about setting yourself up for a lawsuit! If our surveys are not perfect, do we really want our clients—*or anyone*—to believe they are?

Nearly every boundary survey involves some set of facts or evidence that potentially compromise the surveyor's ability to develop an "exact" answer. It is logical and appropriate that the client and others who

may rely on the survey (lender, title company, and possibly others) have the benefit of the same information that the surveyor had, as well as the logic and principles that the surveyor applied to the problem.

So, what *are* the types of evidence and facts that inhibit the surveyor's ability to develop that perfect boundary—the one that has no error?

Most obvious is one that surveyors deal with every day—the fact that there is no such thing as a perfect measurement. Most states outline an acceptable tolerance or closure in survey measurements. This information is very appropriate to include in a surveyor's report. Even better, we can use the report to provide the client with a bit of education in that regard. "Boilerplate" language could be easily developed to explain in plain words a bit of measurement theory. Think of the possibilities! All of a sudden you are not "just a surveyor" to the client, but an expert in mathematics, statistics, and physics.

Other facts and evidence that contribute to imperfect boundary resolutions include record documents that are erroneous, incomplete, ambiguous and conflicting. Even when or if the sources of such problems are identified, there may still be that current deed description that the client took title to—one that the surveyor did not create (hopefully) and likewise cannot make it go away.

There are problematic reference monuments that descriptions tie to, and that surveys must be based on—monuments that are uncertain, ambiguous or indeterminate—like the description that began at the intersection of two right-of-way lines, neither of which ever existed; or the purported section corner monument that had been used extensively by numerous surveyors for years that has recently been found to be 17 feet in error.

What about potential encroachments or possible unwritten rights? Rather than settle for vague information on a plat of survey, a client should be able to read a detailed explanation of the conditions.

Most of this sort of information simply cannot be clearly depicted on a plat of survey. The surveyor should outline and explain these issues in a surveyor's report, so the interested parties have the

>>> A CLOSER LOOK AT STATE SURVEY STANDARDS

"A GUIDE FOR THE PREPARATION OF SURVEY REPORTS"

BY LIONEL "BUCK" ALEXANDER & KNUD HERMANSEN, 1990

The purpose for creating a survey report is to provide clear, concise and complete information on the facts, assumptions, analyses, procedures and results obtained during the survey. The motive for preparing a report varies among surveyors. The five most popular motives are the following:

(1) The report provides the client with a more detailed and complete explanation than the survey plat typically provides. In other words, the report allows the surveyor to express with words what he or she may not be able to display graphically. In this regard, the report provides extra information and may help prevent misunderstanding and end some confusion that many clients have in interpreting the plat.

(2) Supplying the client with a report motivates the surveyor to devote the necessary time and thought to the research, reconnaissance, and analysis. To prepare the report without devoting enough time and thought to the survey soon exposes the shortcomings of the survey.

(3) In conjunction with the second reason, the preparation of a survey report forces the surveyor to organize the survey information, analyze the information in a rational manner, and explain the results in a coherent style.

(4) Once the report is finished, it provides various end-users, such as other professionals and intraoffice personnel, with a detailed record of the survey.

(5) Finally, even assuming the contents of the document may not be read by others, the report provides an archival source to refresh the surveyor's memory at a later time.

WEST VIRGINIA STATUTES

30-13A-25(N) AND (0)

[A] report of survey shall be used when the plat and description of survey do not adequately address all matters considered by the surveyor in performing the survey and should be provided to the client with the plat and the description of survey.

The report of survey shall include all unusual circumstances surrounding the survey, with the weight given to conflicting evidence and encroachments, overlaps or gaps and how they were resolved and the names of adjoiners contacted and the information they supplied.

INDIANA ADMINISTRATIVE CODE

865 IAC 1-12-12

(a) When conducting a retracement survey or an original survey, a registered land surveyor shall do the following:

(1) Furnish the client with a written surveyor's report that, in addition to other pertinent data, explains the theory of location applied in establishing or retracing the lines and corners of the surveyed parcel and gives the registered land surveyor's professional opinion of the cause and the amount of uncertainty in those lines and corners because of the following:

(A) Availability and condition of reference monuments.

(B) Occupation or possession lines.

(C) Clarity or ambiguity of the record description used, and adjoiner's descriptions.

(D) The theoretical uncertainty of the measurements.

benefit of the surveyor's extensive and detailed work and resulting opinion.

There are many surveyors who are hesitant or even hostile towards the idea of providing such information in a report. Some believe it is proprietary information that should, for a variety of reasons, not be given out. Some believe it increases their liability. Some think it will take too much time and cost too much.

These are not valid arguments. Providing information so other surveyors can readily understand the evidence and procedures used in a boundary resolution will encourage those that come after to follow in your footsteps rather than wonder what you did. Outlining and explaining the imperfect set of facts and evidence that had to be dealt with will help the reader appreciate the limits of the surveyor's work and the qualifications to his or her opinions.

On a simple, straightforward survey, the preparation of a report need not be a laborious, expensive, or complicated exercise. If the surveyor formed an opinion based on solid boundary law principles and appropriate evidence, it should not be difficult to distill that information down to a complete, concise account.

In the case of a large or particularly difficult survey, the development of the final boundary may have been complicated as a variety of evidence was weighed and weighted, and as applicable boundary law principles applied to that evidence. The resulting report may, therefore, be relatively lengthy. But even in that case—and perhaps *especially* in that case—simply going through the thought process of preparing the report will give the surveyor confidence in and confirmation of the boundary resolution that was developed.

Explaining to clients, attorneys and title companies that the results of a boundary survey are not perfect—and that, in some cases, there may be issues that prevent a singular, definitive solution—is simply good business, and truthful. And what a valuable opportunity to explain what surveyors really do—that the *measuring* is actually the easy part!

Here's a sample preamble to help you get started:

>>> SURVEYOR'S REPORT

"The following observations and opinions are submitted regarding the various uncertainties in the locations of the lines and corners established in this survey due to uncertainties in reference monumentation; in record descriptions and plats; in lines of occupation; and as introduced by random errors in measurement. There may be unwritten rights associated with these uncertainties.

This survey was based on..."

Case Studies/Examples

Regarding the facts shown on the drawing and legal description below:

Where would you place the southwest corner of the tract north of the fence? Why?

How would you communicate this situation to your client if she was the owner north of the fence?

What if your client was the owner south of the fence? If your clients south of the fence are planning on developing their property, what would you advise them?