Lesson 8: Legal Descriptions

Lesson Topics
This lesson focuses on the following topics:

- Introduction
- Describing Land/Legal Descriptions
- Methods of Describing Real Estate in Texas
- Legal Description
- Surveying

Lesson Learning Objectives
At the conclusion of this lesson you will be able to:

- Outline the basic features of the metes and bounds survey method.
- Locate a parcel of land using the rectangular survey method.
- Distinguish the vertical method of land description from other survey methods.

Introduction
In this lesson, we will discuss how land and property are located, measured, and legally described and identified. This process of defining and describing land and real estate is essential because legal ownership requires that we be able to distinguish the owned piece of land or real estate from all others - otherwise, there would be no clear way to tell what was owned by any particular individual, or what lot was described by any particular deed. The exact boundary of a property can be determined several ways; by metes and bounds, rectangular survey systems, as well as by recorded plats or, sometimes, a pre-existing document describing the property. A less exact, but nonetheless common way to locate a property is informal location reference. We will begin our discussion of land description by considering informal location references.
Describing Land/Legal Descriptions

Legal Property Description

A legal property description makes it clear to all parties exactly what property is being bought or sold. It can be used by the courts to clarify any disputes about the property.

A property’s street address provides identification, but it is not enough. It is insufficient because “123 Main Street” might be the address of any given property in any given town that happens to have a street called “Main Street.” If we spell out the address further, as “123 Main Street, Anytown, Anystate,” this does not tell us the size of the property or the specific boundaries of the property. Not all properties even have a street address. This requires a legal description, and we need a way of describing property that can apply to all real estate.

A legal property description must include a method of determining the boundaries of the property.

- **Metes and bounds**: A legal land description method identifying a lot’s exact dimensions and location in reference to a fixed and permanent monument.
  - **Metes**: refers to the distance measurements used in the description
  - **Bounds**: refers to the directions of the boundaries that enclose the parcel of real estate.

- **Rectangular survey system**: (also known as a government survey or U.S. public lands survey) Uses a more refined version of the longitude and latitude system of mapping with a surveyed grid of meridians, baselines, townships, and ranges to describe a particular piece of land. This survey system is not used in Texas.

- **Recorded plats**: (also known as the “lot-block-tract system,” the “recorded survey” or the “recorded map”) uses the metes and bounds method of land description to locate the borders of each parcel, and once the surveyor establishes the property’s perimeter, he or she records the dimensions on a plat (map) for easy reference.
This map is filed with the proper local authority, such as the county clerk or the county records office.

Given this general overview, the important thing for the reader to remember is a sales contract must contain a legal property description uniquely identifying the property involved in the transaction.

Although each method can be used independently, the methods may be combined in some situations. Some states use only one method; others use all three. About ten states, including Hawaii and Colorado, have properties that are identified by means of a Torrens certificate, which is issued and guaranteed by the state. The Torrens system was created by Robert Torrens in Australia in 1858. Because of the expense involved in verifying a property description before issuing a certificate, the Torrens system was not widely adopted in this country, but it is still popular in Australia, New Zealand, and Canada.

Today, technology allows for greater precision both in land measurement and recordkeeping. The use of a satellite-based geographic information system (GIS) to locate land boundaries and objects with amazing accuracy and the use of computer-aided design (CAD) programs to create maps have sparked a new era in land description. The National Geospatial Advisory Committee, www.fgdc.gov/ngac, was created in 1994 to coordinate geographic data acquisition and access. The Federal Bureau of Land Management and USDA Forest Service were charged in 1998 with the task of developing the National Integrated Land System (NILS) in cooperation with states, counties, and private industry. Recognizing the need for consistent standards of data collection and use, the Cadastral Data Content Standard was created by the Federal Geographic Data Committee, www.fgdc.gov, to integrate information found in publicly available land records. The NILS is being designed to be compatible with land descriptions utilizing both the metes-and-bounds method and the rectangular survey.
Methods of Describing Real Estate in Texas

Informal Location References
For purposes of legal documents, the exact size and location of a property requires precise measurements. For everyday commuting and travel, complex legal land descriptions are unnecessary and irrelevant. This is why in everyday use we have a system of informal references that describe location by street. We can use these informal descriptions when a practical need for simplicity supersedes our need for precision.

Street numbers and place names are all informal references. For example, 1234 Main Street and 123 First Street, Apartment B are informal references, as are districts or titles, such as “Hyde Park” or “Lazy River Ranch.” The advantage of an informal reference point is that it is easy to understand and makes it possible for the layman to locate a home or an office building without the aid of a survey team. The disadvantage, from a real estate standpoint, is that informal references are not specific enough because they do not describe a particular property's borders.

For a document to be recorded it must contain a specific legal description.

Recorded Plat Method of Land Description
Next to the informal use of addresses and districts, recorded plats are probably the simplest method of land description. They are used when parcels of land, divided up into individual lots, are ready for sale or development.

The term “plat” refers to a surveyor or developer's map detailing the borders of the individual lots that he or she will develop or sell. When a surveyor or developer records his or her plat in the public records office of the county where the land is located, then the map becomes a legal description of property for ownership. The recorded plat system of land description is also called the “lot-block-tract system” and the “recorded map method.” It utilizes the metes and bounds method of land description to locate the borders of each
parcel. Once a surveyor establishes a parcel's perimeter using this method, he or she records the dimensions on a plat for easy reference.

To understand how the recorded plat system works, we must understand the “pieces” that make up a plat. Specialized terminology is used to identify these “pieces.” “Parcels” are the individual lots that are combined to make a “block,” and blocks are combined to make a “tract.” The tract is the totality of the property represented on the plat.

When discussing the recorded plat system of land description, it is imperative that these terms are used in only these ways - using the terms carelessly or inconsistently will create confusion. Understand, however, that in other sections and in our daily conversation, a \textit{lot} or a \textit{tract} is often the same as a \textit{parcel}: a piece of land or real estate. This distinction between specialized terminology and everyday conversation regarding the parts of a plat is similar to the distinction discussed earlier regarding the conventions governing the terms “real estate,” “real property,” and “land.”

\textbf{Recording a Plat}

While the exact recording method depends on the jurisdiction, generally, a surveyor completes the following steps to record a plat:

1. Give each parcel a lot number.
2. Give each block a block number.
3. Give the tract a name or number.
4. Deliver the plat on which all property lines are described by metes and bounds, listing all relevant lot numbers, block numbers and tract numbers to the county recorder's office in which the land is located.
5. The county recorder places it in the map books or survey books, alongside all other tracts in the area.

\textbf{Mettes and Bounds Survey System}

In the past, when people wanted to record title to a particular lot they would reference its location relative to some landmark, such as a stream, road, bridge or tree. This worked
well enough for a time, but as our cities grew and property disputes arose, it became necessary to establish more exact descriptions of a property’s location. The drawbacks of the landmark system are evident: streams, roads, bridges, and other landmarks change and deteriorate over time. In addition, not all properties are fortunate enough to be favored with a noticeable landmark in their immediate vicinity. To solve this problem, communities developed the *metes and bounds* system of land description.

Metes and bounds is a legal method for describing land that gives the exact dimensions and location of a lot in reference to a man-made or possibly natural fixed monument. To use the metes and bounds method, a surveyor places a monument in a corner of a parcel; the monument can be a metal pole one to two inches in diameter, or a stone or concrete fixture. The surveyor then records the parcel's distance and direction from that point by measuring the perimeter of the lot in feet, usually to tenths or hundredths of a foot. He or she indicates direction in degrees, minutes, and seconds.

The sexagesimal system is one form of units used to describe angular measurement. In this system, there are 360 degrees (°) in a circle, 60 minutes (‘) in every degree, and 60 seconds (") in every minute. Therefore, the directional notation 80°50'32" reads 80 degrees, 50 minutes, and 32 seconds. These measurements provide a way for the surveyor to describe any direction in the 360° circle around the set monument. The monument is described as the point-of- beginning (POB) or the point of commencement for a directional notation because we move clockwise from the monument around a parcel of land describing size in feet and direction in degrees, minutes, and seconds.

**Case Study**

Developer A establishes the size and shape of each residential lot in her plat using the metes and bounds method of land description. After she gives each lot a lot number, gives each block a block number and gives the tract itself a name, she wants to begin selling the lots to potential homeowners. How can her choice of land description method make the conveyance process easier for both herself and potential purchasers?
**Answer:** Every deed requires a legal land description. Rather than record the extended metes and bounds description of each lot every time one is sold, Developer A could record the plat itself with the proper local authorities and then refer to the tract, block, and lot number of each parcel in its individual deed. To record her plat, Developer A must take the finished map, with the metes and bounds descriptions labeled, to her county records office. This office will record her plat as a unit among the other plats in the area. The recorded plat method is probably the simplest method of legal land description, although it is not as commonly used as the rectangular plat. Note: it is not legal in Texas to refer to a tract by lot and block until the subdivision plat has been approved and recorded with the county recorder’s office.

**A FUN FACT ABOUT TEXAS MEASUREMENTS**

**VARA.** The vara, a Spanish unit of distance, was used in the Spanish and Mexican surveys and land grants in Texas. One vara equals approximately thirty-three and one-third inches.

Some of those old surveys still exist and you may see the term.

**Compass Directions**

The sexagesimal system of degrees coupled with measurements in feet may seem complex. To understand how surveyors, use degrees, minutes, and seconds to distinguish direction, and thus location, just place the measurements on a 360° circle marked with cardinal directions, or a compass. Imagine you are standing directly on the monument holding the compass. From this position, you can move outward in any direction from the center of the 360° circle - forward, backwards, or to either side. Whichever way the surveyor chooses to move, surveyors describe that direction relative to two transecting lines: a north-to-south line and an east-to-west line. Their directions are relative to these lines. Consequently, metes and bounds directions indicate:
• Whether we move north or south of an east-to-west transaction through our monument.
• Whether we move east or west of a north-to-south transaction though our monument.

In essence, we give directions relative to a 90° crosshair placed dead center on top of our monument. Using this method, we can also describe complex geometric perimeters, such as arcs. In the metes and bounds survey method, a surveyor uses a compass that contains four 90° quadrants - taken together, these encompass the full 360° of a circle.

**Benchmarks**

Metal rods and stone fixtures are ultimately no more permanent than a stream or tree, so how do we ensure that no confusion arises in the event that a parcel's monument is destroyed? To compensate for the impermanence of these monuments and ensure that lot dimensions are not lost even if the monument itself disappears, we record the monument’s exact location by means of a connection line to a nearby fixed reference mark of known location and elevation as established by a government survey team. These permanent reference points are called “benchmarks” and they generally consist of a marker attached to a durable object.

The marker may be a simple object, like a metal pole, or it may be an elaborate, engraved brass disc placed in cement by the U.S. Geological Survey (USGS) or the U.S. Coast and Geodetic Survey (USCGS). The locations of benchmarks are extremely accurate, usually to less than an inch. Records are kept regarding the locations of all official benchmarks, relative to each other. Therefore, in the event a benchmark is destroyed, it can easily be replaced because the exact locations of all benchmarks are known.

**Rectangular Survey System**

In 1785 Congress authorized the use of the rectangular (or government) survey system as an alternative to metes and bounds. Back then, the metes and bounds system would have been extremely difficult to use, given the lack of permanent monuments and the
relative difficulty of establishing precise locations. The rectangular survey system provided an easier way to describe newly acquired or surveyed land. The rectangular survey system is currently not used in Texas.

Whereas the metes and bounds method of survey requires a physical monument, the rectangular survey method depends upon the longitude and latitude system of mapping. Longitude lines (meridians) run north to south, segmenting the globe along the Earth's poles, while latitude lines (parallels) run east to west, parallel to the equator. Certain longitude lines serve as principal meridians. For any given principal meridian (a “noted longitude line”), there is an intercepting, specially-noted latitude line, called a “base line.”

Every 24 miles north and south of a base line, we name a correction line, or standard parallel. Conversely, every 24 miles east and west of a principal meridian, we name a guide meridian. This method allows for the Earth's curvature. That is to say, a map might illustrate a grid of lines intersecting at 90° angles, but accurately mapping the surface of a sphere requires a slight shifting of our lines. This curved surface requires that the Earth's grid of meridians and parallels be slightly distorted; as one approaches either pole, longitude lines (meridians) get closer together. Every 24-by-24-mile area created by a guide meridian and a standard parallel is known as a “check.”

There are 36 principal meridians (with corresponding base lines) in the U.S. public land survey system. Generally, each state will utilize the one principal meridian (north-south) and corresponding base line (east-west) that run through that state as the principal point of reference. Some states, however, do not follow this rule. For example, Ohio uses rectangular plots that are established relative to state boundaries and rivers. Even if they do not use the principal meridian and corresponding baseline as a general point of reference, states will create a system of ranges and townships, which create a smaller, more detailed grid relative to the larger principal meridian and base line grid.
Ranges
A “range” is a column created by drawing a parallel line every six miles east and west of a principal meridian (north-south). Ranges are numbered consecutively east and west from their respective principal meridians. In essence, these range divisions establish a series of narrower longitudinal lines, adding greater detail that allows us to locate specific parcels of land within a “check.” The rectangular survey system uses these range columns in conjunction with township lines, which are the more-detailed counterparts of latitude lines. We will now discuss this other component of the rectangular survey system.

Townships
Just as range columns run parallel to meridians (the north-south longitude lines), township lines run parallel to base lines, thus making the township lines run east-west. These lines intersect with range lines to create 36-square-mile parcels (six-by-six-mile squares) called townships. We number township “rows” consecutively, north and south of a base line. For example, for the first tier of townships lying north of a base line, the entire row is called “Township 1 North” (T1N) and all those comprising the first row south of the base line are dubbed “Township 1 South” (T1S). By attributing the appropriate range column to a specific township, we can identify it uniquely. For example, “T1N, R1E” identifies a township located on the first tier north of the base line (east-west) and one range column east of the principal meridian. This six-by-six-mile square is thus differentiated from all others on the grid.

This diagram provides a visual depiction of the way that township lines and range columns intersect to form townships. It also shows the way that identifiers like “T1N, R1E” pick out a unique location in a grid of six-by-six mile squares, relative to the base line and the principal meridian.
The Dissection of Townships

Establishing the unique location of a township is, for our purposes, the most difficult part. After that, designations become a little easier. Each 36-square-mile township is divided into 36 individual square mile sections, starting in the upper right-hand corner. Each square mile contains 640 acres, and every acre has 43,560 square feet. Perhaps you have flown over farmland and seen a visible demonstration of our rectangular survey system. From a plane, much of the Midwest looks like one giant checkerboard.

Since most western states do utilize the rectangular survey system in describing very large tracks of land, we’re going to take a look at Arizona as an example of a state that uses this system. Arizona has one principle meridian, which is the point of beginning to describe the townships and from which all meridian lines and baselines are numbered. In Arizona, this is called the Gila & Salt River Base & Meridian (GSRBM). This meridian is approximately 20 miles southwest of Phoenix.
From this point the form the meridian, the lines six miles apart that run north and south parallel to the principle meridian are called range lines. The lines that run east and west parallel to the baseline are called tiers or township lines. These lines are numbered in six-mile increments from the principle meridian and baselines going east or west.
For Example:

The township that is highlighted is referred as “Township 2 South, Range 3 West” or “T2S, R3W”.

Townships are then divided into one-mile square sections and numbered according to the following illustration: (Note that there are 36 sections in a township.)
The numbering system is more effectively illustrated in the following graphic:

Each section contains 640 acres. In describing land, sections can be divided up into halves or quadrants using compass points.

For example, the number of acres in the SW1/4 of the SE ¼ of Section 33, T2W, R2N is 40 acres. One section = 640 acres; ¼ = 160 acres; ¼ of 160 acres is 40 acres.
Concluding Notes on Rectangular Survey

In terms of the surface area surveyed, more U.S. land is defined by rectangular survey than by any other method. In light of this, it is important that licensees understand a few key points about the rectangular survey method:

- Not all sections are exactly 640 acres; some are slightly smaller because of the Earth’s curvature.
- It is customary to name the county and state along with any rectangular survey title.
- Some rectangular survey descriptions will include fractions; the fraction identifies a portion of a 640 acres area (for example, if you see 1/4, then it means one-fourth of 640 acres, or 160 acres). A fractional designation will generally include notation indicating which half or quarter is meant; for example, “NE 1/4 “picks out the upper right quadrant of the 640-acre square.

Vertical Land Description

All of the methods we have just discussed are surface identification methods. That is to say, informal methods of land description, rectangular survey, metes and bounds, and recorded plats all distinguish pieces of land in terms of their surface location. While we commonly think of surface description when we consider land distinction, it is not the only way to describe the location and layout of a particular parcel.

Land can also be described according to vertical measurements. You may recall the different types of rights associated with real estate ownership: subsurface rights, air rights, surface rights, and water rights. A vertical land description is most commonly used when air rights and subsurface rights need specific explication. Vertical land description is also used to express condominium ownership boundaries.

In essence, we create a vertical description by establishing a base point (called a “datum”), from which we move upward or downward marking standard heights or depths (we can imagine this arrangement as something like a very large ruler extending upward or downward from the datum). We reference these heights or depths to denote locations
in space. In this way, we can describe land points at any elevation, the air space above a lot, and the minerals below a lot. Usually the datum used is mean sea level, although some cities or other local jurisdictions utilize a different standard. From the datum, benchmarks are placed at regular intervals established by a U.S. government survey team.

An “air lot” is the space above a particular parcel. To locate a particular air lot, two pieces of information are needed; the location of the parcel of land where the air lot is believed to be and then the elevation (from the point of the datum) of where the air lot is thought to extend. We use the same method to identify individual units in multi-story condominiums and to pinpoint the location of minerals or soil boundaries beneath a particular lot for the purposes of selling or leasing mineral rights.

**Contour Maps**

Elevation affects development. Consequently, developers need to have a clear picture of the terrain and elevation for a given parcel. A contour map (also called a “topographic map”) is a map in which curved lines (called “contour lines”) connect contiguous points of equal elevation to define the contours of the land.

A contour map shows hills, valleys, plateaus, and other patterns that may affect water drainage or runoff and other development issues. A developer uses a contour map to determine the need for leveling, grading, and engineering problems that may arise - building upon a slope with a 90-degree angle is difficult.

**Reference to a Previous Record**

For legal purposes, such as deeds and mortgages, a parcel description must distinguish that parcel from all other parcels in the world; however, a parcel does not need a new description each time it changes hands. Instead, we can reference previously recorded descriptions for the new conveyance. Consider the following example:
Developer C sells a parcel to Owner A. Developer C has already described this parcel using a detailed metes and bounds description and filed it in a subdivision plat located at the county recorder’s office. Owner A files the deed giving her title to the property in the public record. Six years later Owner A decides to convey title to Owner B. Already on public record (in Owner A’s recorded deed) is a detailed metes and bounds description of the parcel's location. Therefore, there is no need to describe the land’s location again.

Rather than employ a surveyor, Owner A and Owner B simply record the new deed, using something like the following phrase: "All land described in Owner A’s deed received from Developer C, recorded in (book, page, county, and state)." A seller of real property can typically use and rely on a survey for seven years. After seven years, lenders and title companies generally require a new survey, to ensure the land area has not been compromised by sale or purchase of the land or altered by development, infringing neighbors or natural changes in the land.
Legal Description

An example of a metes and bounds:

METES & BOUNDS DESCRIPTION
A PARCEL LOCATED AT THE NW CORNER OF THE INTERSECTION OF AYER ROAD AND BEE STREET IN THE TOWNSHIP OF POHOUNCK, GESTAMAJEEN COUNTY, MICHIGAN AND FURTHER DESCRIBED AS COMMENCING AT THE POINT OF BEGINNING, THEN N 20’0” W - 110.50 FEET, THEN N 88’0” E - 78.00 FEET, THEN N 20’0” W - 63.50 FEET, THEN S 82’0” E - 145.00 FEET, THEN S 13’44’40” W - 185.83 FEET, THEN N 82’0” W - 173.00 FEET, TO THE POINT OF BEGINNING, AND INCLUDING 0.717 ACRES.

Source: http://iammea.org/ggingras/cad115/m&b_desc_big.htm
An example of a subdivision plat map:

Source:
https://www.bing.com/images/search?q=Property+Plat+Maps&view=detailv2&id=540561AAC0963F86886A0FE9400C027A44A1561B&selectedIndex=19&ccid=OMJqKzle&simid=608010217383202465&thid=OIP.Ma0c26a2b395e28907894b6bab0fc7bfo0&ajaxhist=0

Surveying

Becoming a surveyor is another area of real estate services. Surveying or land surveying is the science of determining points and distances and angles between them. A land surveying professional is called a land surveyor. These points are often used to establish land maps and boundaries for ownership transfers of real estate.

The process of securing your license varies from state to state. In any case, it's important that you understand your state's requirements. You can always contact the National Council of Examiners for Engineering and Surveying (NCEES) to learn more about the
procedures specific to your jurisdiction. Regardless of jurisdiction, the process of obtaining your license is similar throughout the United States.

The Texas Board of Professional Land Surveying regulates surveyors in Texas. The mission of the Texas Board of Professional Land Surveying is to protect the residents of Texas by regulating, licensing and renewing the licenses of only competent surveyors. You can find more information about surveying at http://txls.texas.gov/the-board/.

**Measuring Property Rights**

Here is an article on using land surveys for creating legal descriptions, determining rights of way and title insurance


The term "right of way" can mean several different things. Generally, a right of way is an easement, but the term may also apply to a fee simple strip of land or a public right of way for roads, drainage or utilities. No matter what form of ownership or property rights are intended, the exact location of rights of way must be described with accuracy.

**COMMON TYPES OF LEGAL DESCRIPTIONS**

A sufficient legal description is one that either identifies the location of the land on the ground to the exclusion of all other land, or furnishes some means by which such location can be obtained from other sources. On the other hand, a legal description is insufficient if it does not, even with the aid of extrinsic evidence, identify the subject land to the exclusion of all other land. Unfortunately, there is no standard rule which uniformly defines the sufficiency of a legal description. Rather, courts generally apply rules of construction which favor certain possible interpretations of a description over others to further the overall goal of determining the true intent of the parties to the instrument containing the description.
A legally sufficient land description can be written in several different ways, and can include combinations of different methods. If it is not written in a proper manner, the subject land may be described in an unintended location. If the description is erroneous or insufficiently vague, it may locate the land on another person’s property or may not describe any land. In such instances, the insufficient description may render a conveyance void, cloud or slander the title of another, or negate the value of the property rights intended to be granted, acquired or described.

There are five types of legal descriptions that have been developed to achieve greater accuracy and precision in identifying land and land rights: 1) the United States Public Land Survey System (USPLSS), sometimes referred to as the “rectangular” or “quadrangular” survey system; 2) descriptions referring to recorded subdivision plats; 3) the metes and bounds description; 4) the State Plane Coordinate Systems; and 5) general descriptions incorporating extrinsic evidence.

There is no single preferred method for writing legal descriptions. Any one of these five types, or different combinations thereof, may be the most appropriate means for describing the location of a right of way, depending on the factual, contractual and physical circumstances. Rather, the preferred method of writing descriptions is simply to use the best type or combination of types and parts that will give the clearest and shortest description possible.

**THE UNITED STATES PUBLIC LAND SURVEY SYSTEM (USPLSS)**

The most common method for describing large parcels of land in public land states is by reference to the USPLSS. This is a grid system that is unique to North America. Any parcel of land can be precisely identified, to the exclusion of all other land, by stating the section (or a fractional subdivision thereof), township and range numbers in relation to a specific Principal Meridian. The rectangular survey system that is the foundation of the USPLSS was implemented to locate and describe the first sales of public lands in the U.S., and substantially all federal disposals of the public domain since 1800. Since then, the USPLSS has been extended westward and now covers 30 of the 50 states.
Since all major legislation authorizing the disposal of public lands, except for the mining claims, has required that the land be surveyed prior to disposal, the demand for private ownership of the public domain required the extension of the USPLSS to cover all of the new territories and states. Until 1910, all public land surveys were conducted by private surveyors pursuant to contracts executed by the Surveyors General who were under the supervision of the Secretary of Treasury from 1797 to 1812 and the Commissioner of the GLO from 1812 to 1910. This contract system ended with the Civil Appropriations Act of 1910, which provided for the direct employment of competent surveyors by the Secretary of Interior. Today, substantially all official surveying by the federal government is performed by the Cadastral Survey branches of the Bureau of Land Management (BLM), whose service center is located in Lakewood, Colorado.

**USPLSS Grid System**

The objective of the USPLSS was to create a checkerboard of identical squares covering a given area. The largest squares measure 24 miles on each side and are called quadrangles. Each quadrangle is further divided into 16 squares called townships, the boundaries of which measure six miles and run north-south and east-west.

A column of townships running north-south is called a range and is numbered numerically east and west according to its distance from the Principal Meridian. There are now 36 principal meridians, the first of which was numbered 1 through 6, located in different parts of the U.S.

Following is a general summary of the how the USPLSS was systematically extended across the U.S., and which methods were used by surveyors to address certain topographical features that did not fit squarely within its rectangular grid.

**Initial Points**

First, an initial point would be established from which all subsequent survey lines were oriented. The initial point for the first official government survey was expressly described in the Land Ordinance of 1785 as the point that was “due north from the
western terminus of the southern boundary of the State of Pennsylvania.” Subsequent legislation left the designation of initial points to the applicable federal agency. Many of the initial points were selected to be very prominent and visible landmarks on which an official monument would be erected.

**Principal Meridians and Baselines**

Principal Meridians (i.e., north-south lines) and Baselines (i.e., east-west lines) originating at the initial points were marked on the ground by deputy surveyors. Each Principal Meridian was intended to conform to the true meridian extending north and/or south from the initial point. Regular quarter-section and section corners were established alternately at intervals of 40 chains (2640 feet or ½ mile) and regular township corners were established at intervals of 480 chains (31,680 feet or 6 miles) along each Principal Meridian and Baseline.

There are now 36 Principal Meridians located throughout the United States, the first of which were numbered one through six. For example, the 6th Principal Meridian to which legal descriptions for Kansas, Nebraska, and most of Colorado and Wyoming are tied, is approximately 402 miles east of Colorado Boulevard in Denver, and its Baseline, which follows the 40th degree line of latitude is the boundary between Kansas and Nebraska and runs on Baseline Road through Boulder, CO.

**Standard Parallels and Guide Meridians**

Standard Parallels were extended east and west from the Principal Meridians at intervals of 24 miles north and south of the corresponding Baselines. Guide Meridians were then extended north from the Baseline or Standard Parallel at intervals of 24 miles east and west from the Principal Meridians. These Guide Meridians were terminated at the points of their intersection with the Standard Parallels. At the true point of intersection of each Guide Meridian with a Standard Parallel, a closing township corner was established. The resulting 24 mile squares are commonly referred to as quadrangles.

Whenever practicable, the exterior lines of each township were surveyed successively through the quadrangle in ranges of townships beginning from the
south. Each quadrangle was then divided into sixteen townships which, ideally, should each be exactly six miles square. The townships are numbered originally from north to south and east to west according to their distance from the Baselines and Principal Meridians to which they relate. Rows of townships running east and west are referred to as township numbers and columns of townships running north and south are referred to as range numbers.

**Correction Lines**

Because of the curvature of the earth, the north-south lines or ranges converge, or come closer together, as they extend toward the north pole. To keep the range lines as nearly parallel as possible and six miles apart, the lines are laid out for approximately 24 miles. Then, there is a jog, referred to as a correction line, so the lines are again six miles apart, to preserve, as close as possible, the square shape of the township. Other errors or irregularities causing quadrangles to be more or less than 24 miles square or townships to be more or less than six miles square, are accommodated in the further subdivision of the townships.

**Documentation for Official Surveys**

Public lands are not considered to be surveyed until the survey is approved by the responsible official and all field notes, plats and supplemental plats are filed with the administering land office. The physical evidence of a governmental survey consists of the monuments established on the ground, and the duly approved field notes and plats, which are available to the public for viewing on microfilm in various offices of the BLM.

The original township, section, quarter-section, and other monuments physically evidencing the survey will be considered to represent the true corner and control over conflicts with the course, distance and area calls set forth in the field notes and plats. Once approved and filed, the official survey and plat becomes the final source for resolving all disputes regarding the location of and area within land disposed of by the federal government. As such, most of the land for which title originates from the federal government can be identified by an official survey which locates it within the USPLSS.
Monuments

The initial surveys of the Seven Ranges in Ohio marked only the township boundaries and a section was the smallest subdivision of land platted. Later surveys by the GLO subdivided alternating townships into half sections, and eventually quarter sections. Government surveyors are now required to monument the corners of each quarter section in all townships on the ground and return a formal record thereof in the form of field notes. Further subdivisions can be made by county or private surveyors.

Each section and quarter section corner has an established point known as a corner monument, or “survey monument.” Initially, these survey monuments were made of natural materials such as stones, pits & mounds or charred stakes. The legal monument used today is a 3-1/2-inch cap made of brass or aluminum on a 2-1/2-inch pipe, 30 inches long. Up until recently, land surveyors could use other materials such as rebar, axles, and pipes in addition to the standard BLM monuments for marking land corners. Most states now have statutes and rules regulating the establishment and rehabilitation of monuments which conform them to the BLM requirements.

Field Notes

Each surveyor keeps notes in the field which identify and describe the lines and corners of the survey and significant topographic features of the subject land. These initial notes are transcribed into official, typed field notes conforming to the arrangement and phraseology prescribed by the BLM Manual. These transcribed field notes and the township plats prepared from them are considered to be the primary record of the survey upon official approval, acceptance and filing, whereupon the initial survey notes prepared in the field are destroyed.

The introductory statement to the field notes should include: 1) the history of any prior surveys; 2) a list of the surveys included in the subject field notes; 3) a description of any unusual survey situations and any special method used to address them; 4) a statement that the survey was conducted according to the specifications set forth in the BLM 1973 BLM Manual; 5) a description of how the directions of lines were determined and that they refer to the true meridian; 6) a
statement that the original survey lines were retraced in the case of a dependent resurvey; 7) identification of the geographical position of the corner of the survey and how it was determined; and 8) the observed magnetic declination.

The field notes should then proceed with a full description of the monuments established by the survey on the ground, the directions and distances of the lines measured, and additional notes reflecting the surveyor’s observation of topographical, cultural and other significant features of the subject land, including the character of the land, soil, and forest cover. The surveyed lines should be summarized at the conclusion of the field notes for each mile. A general description of the topography, soil, forest cover, water supply, drainage, mineralization, settlement, improvements, etc. should be provided for the township as a whole at the conclusion of the subdivisional notes for each township. The field notes should also include a record of the names of the surveyors, their assistants, and the authorized officials approving the survey.

**Township Plats**

The township plat is a drawing which depicts the survey lines marked on the ground. The plats are constructed from the field notes to depict the subdivision of each regular section into quarter-quarter sections. They also show the direction and length of each line, the relation to adjoining surveys, the boundaries of each subdivision and a description of the area of each parcel of land. Acreages for irregular sections, and any significant topographical features or categorical information may also be noted on a township plat.

Each regular township contains 36 sections which, ideally, should each be exactly one mile square. They are numbered sequentially starting with Section 1 in the northeast corner and proceeding in an alternating serpentine pattern, “as the oxen plow,” from east to west and then west to east, ending with Section 36 in the southeast corner. In the case of fractional townships, the sections bear the same number they would have if the township was complete. Each regular section will show center section lines only and indicate that the area is 640 acres. For irregular sections, or other circumstances requiring lotting, each subdivision must be distinctly shown.
**Lots**
The north and west rows or tiers of sections in the township are known as closing sections. These areas are where discrepancies of measurements, known as closure, between the interior section lines and exterior boundary line surveys are adjusted. These sections usually contain more or less than the 640 acres in a regular section. The portions of the section where the discrepancies are places are referred to as lots. Generally, irregular sections will be platted to subdivide as many regular quarter-quarter and half-quarter and quarter sections as possible. Then, lots will be established across the northern and/or western boundaries, setting forth the number and acreage, with area computed to the nearest 1/100th of an acre, for each lot. Because the underlying object of the quadrangular survey system is to achieve the maximum number of perfect one-mile square sections containing exactly 640 acres, all distance and acreage corrections required are accounted for in one or more irregular sections along the north (i.e., Sections 1-6) and/or west (i.e., Sections 6, 7, 18, 19, 30 and 31) boundaries of each section. The remaining 24 sections are usually regular one-mile square sections. For irregular sections on the north and west of a regular township, protracted the quarter-quarter section lines are utilized to designate lots, which are numbered sequentially from east to west starting with Lot 1 in the northeast corner for sections along the northern border or sequentially from north to south starting with Lot 1 in the northwest corner for sections along the western border. In Section 6, in the northwest corner of each township, lots are numbered from east to west starting with Lot 1 in the northeast corner and then continuing from north to south from Lot 4 in the northwest corner to Lot 7 in the southwest corner. Lots may also be established and numbered in other parts of the section when irregularities, such as water bodies, mining claims, or defective alignments, are incurred. The remainder of the section will, to the maximum extent practicable, be platted in aliquot quarter, half-quarter and quarter-quarter sections.

**Tracts**
Another common exception to the goal of establishing perfectly square quadrangles, townships and sections, was the need to accommodate vested property rights that did not conform to the linear concept inherent in the system. Whenever a resurvey is deemed necessary, or an original survey was subject to
prior vested property rights, the prior ownership established on the ground must be preserved. This is accomplished by first surveying the land subject to the prior vested property right and monumenting the corners of each tract. The surveyed tracts are then numbered sequentially in the plat for each township, starting with Tract 37 so that the tract numbers do not overlap the section numbers. Then, the township lines are surveyed just like an original survey, with closing corners set at the intersection of any tract boundary with a section line, and lottings are established for the fractional quarter-quarter sections adjoining the tracts.

**Supplemental Plats**

In areas covered by mining claims and other property rights that were vested prior to the initial survey, the township plats often include supplemental plats of those portions of the township. Supplemental plats are also often prepared to depict the irregular boundaries bodies of water and of prior vested rights identified in resurveys. Generally, supplemental plats are drafted on a larger scale to facilitate the inclusion of additional detail. All supplemental plats should show a reference to the base plat and the purpose and authority for its preparation.

**Meander Lines**

The presence of rivers, lakes and other bodies of water present a special challenge to the implementation of the quadrangular system, because, if for no other reason, permanent monuments cannot be established therein. Moreover, since the Land Ordinance of 1785, the navigable rivers, lakes, and streams have been declared public highways which were never subject to disposal by the federal government.

The survey line demarcating the bank of any natural body of water, whether or not navigable, is referred to as a meander line. Meander lines do not constitute boundaries defining the area of ownership of the lands adjacent to a water body. The actual course of the stream or lake defines the boundary and the ownership of adjoining land changes with the changing water course. Meander corners are established at every point where standard township or section lines intersect with the bank of every navigable stream or other meanderable body of water. However, the actual monument for a meander corner should be established on a line at a secure point near the true location of the meander corner.
**SUBDIVISION PLATS**

All states have statutes providing for the platting of subdivisions. Once a plat has been approved and recorded in the county records, legal descriptions in instruments affecting title to or uses of land which refer to the designations given in the plat are generally sufficient. However, in the event of a conflict between the recorded plat and an actual survey with respect to the courses, distances, measurements, or acreage quantities, the actual survey will control. Likewise, the survey from which the plat was drawn controls over any conflict between the survey calls and the depiction thereof in the plat.

It is well established that a reference to a plat in an instrument affecting title to land as part of the property description, the plat becomes incorporated into the instrument. As such, the plat should be considered as giving the true description. For example, if an easement purports to convey rights to use a specific amount of acreage, but describes the right of way granted by reference to a recorded subdivision plat, the actual acreage identified in the plat will control even if it differs from the acreage in the easement instrument. While reference must be made to the subdivision statutes of the state in which the subject land is located for the specifics, the basic process for the preparation, approval and recording of a subdivision plat is essentially as follows:

1. A detailed survey of the boundaries of the land to be subdivided, and all streets, alleys, utility easements, interior subdivisions (i.e., blocks and lots) and other designations, must be prepared by a registered professional land surveyor. 2. A plat, which reflects all of the boundary and subdivision lines established by the survey, and such other information as may be necessary, convenient or appropriate for the given circumstances, must be prepared in accordance with the specifications set forth in the applicable statutes. The plat must be executed and acknowledged by the owner of the subdivided land and a certificate of the surveyor stating that it is a proper survey and plat must be included therein or appended thereto. 3. The subdivision and plat must be approved by the governmental official or commission with jurisdiction over subdivisions, usually a zoning or planning board and/or a county, municipal or other local official or commission. 4. The plat,
surveyor’s certificate and governmental approval must be filed in the office of the county recorder or registrar of deeds where the land is located.

When an instrument describes land by reference to a recorded plat, and the reference is solely for the purpose of describing the land affected thereby, any technical defect in the subdivision approval process should not affect the validity of the land description.

Likewise, the loss or destruction of a plat referred to in an instrument conveying real estate should not, generally, void the conveyance if the land can be identified on the ground from the description provided. Even if an instrument does not expressly refer to a recorded plat and make it part of the description, the plat may be resorted to for identification of the lands the parties intended to describe.

On the other hand, where a plat is clearly erroneous, it may not provide an adequate description of the land. Still, parole evidence may be admitted to establish the location of the land the parties intended to describe on the ground, even though portions of the actual survey or plat are inaccurate. Moreover, the fact that a plat referred to in a legal description is invalid because it was not duly approved or properly filed and recorded in accordance with applicable statutory requirements, should not affect the validity of the legal description if the survey and plat are correct, the description provided reflects the intent of the parties as to the location of the subject land, and the plat referred to is accessible.

Likewise, a property description that referred to an unrecorded plat may be sufficient if the plat can be identified by parole evidence. This is really nothing more than an extension of the general rule that allows parole evidence to be admitted if it helps explain the intent of the parties to an ambiguous instrument. Producing the unrecorded plat referred to in an instrument may clarify a property description that appears to be ambiguous on its face. This result is similar to the result when a legal description is given by reference to another recorded instrument. In both instances, the parties have in mind a specific parcel of land and are merely using the reference as a convenience. Ordinarily, a description by tract or lot and block (or other designation) in a recorded subdivision plat will prevail over courses,
distances, measurements and other calls for monuments provided in the description, unless there is evidence indicating that the parties specifically intended otherwise. Similarly, a description of property by its designation in a subdivision plat will generally be construed as intending the metes and bounds depicted in the plat and may incorporate other information or restrictions identified therein.

**METES AND BOUNDS**
The U.S. and Canada are the only countries in the world using the rectangular system. In all of the rest of the world, tracts of land are surveyed and described by metes and bounds. The term metes means measures of length and bounds are the boundaries. The term metes and bounds comes from the method used to describe land in the original 13 states. This method would use natural features, such as trees, a pile of stones or a creek as monuments in describing the lengths and directions of the lines. Adjacent landowner names were also included in the description.

Example of historical metes and bounds description: Beginning at the 24 inch oak tree at the northeast corner of Jake Miller's property; thence north along the east line of Jake Miller's property and along Rock Creek, a distance 400 feet to the 6 inch Cedar tree…

**Survey Calls**
When an appropriate description cannot be accomplished by reference to the USPLSS or a recorded subdivision plat, usually due to the non-rectangular shape of the parcel and/or the lack of any USPLSS or subdivision plat to reference, the land may be described by metes and bounds. Today, descriptions following the perimeter of a parcel are still commonly referred to as a metes and bounds description even though the bounds are usually omitted.

Metes and bounds descriptions, as well as most other descriptions, should be established or verified by a survey for accuracy and reliability. Most, if not all, states now license and regulate professional land surveyors. Likewise, most states now have statutes with specific requirement for the preparation and filing of land survey
plats. Many also have requirements for legal descriptions that must be satisfied to record instruments affecting title to or the use of land, such as the acquisition of easements, fee property or other land rights.

**Courses**

When writing legal descriptions, it may be necessary to indicate the direction of a line. The direction of a line, known as the bearing, is stated in terms of the angle it makes with the meridian, or a line, through the beginning point of the line. The angles are always measured from a line, not from a point. It is described in degrees, minutes and seconds from the cardinal directions of North or South; never from the cardinal directions of East or West.

Examples of a bearing: North 70°19' East; or South 24°10' 22" West A tip to remember is to imagine yourself walking down the survey line, using the appropriate directions to describe the line. Any cardinal direction of North, South, East or West is expressed as such. All other measurements are described in degrees from these four cardinal positions. Four quadrants, each being 90° of the 360° circumference of a circle can be delineated. The degrees, minutes and seconds from cardinal north or south, starting from 0°00'00" are called out to the east or west until 90°00'00" is reached at cardinal east or west.

Another method to denote the direction of a survey line is the azimuth. It differs from a bearing in that it expresses all directions in terms of the angle from one direction only, from 0 through 360°, instead of being broken into four quadrants. Azimuths are usually referenced from cardinal north, but military azimuths are usually referenced from cardinal south. In order to indicate a direction, a surveyor would merely write for example, “290°,” moving clockwise using cardinal north as the starting point, instead of “North 70° West.” Surveyors sometimes use azimuths in their work and in computations, but generally convert it to the usual bearing description.

**Distances**

In colonial times, survey distances were actually measured with chains and/rods as the distance measurements imply. Today, the BLM still records measurements
noted on plats in chains while distances measured by non-government surveyor are in feet, to the hundredth decimal. Many rights of way, usually in the oil and gas industry, are still measured and paid for by the rod, which is equal to 16 1/2 feet. The difficulty in paying for right of way by the rod is the lack of a defined or standard width.

One thing that has not been mentioned so far, and needs to be, is the use of metrics in legal descriptions. For years there have been discussions, plans and rumors about the U.S. going to the metric system. These rumors may be coming closer to reality. The federal government is mandating transportation departments such as the Colorado Department of Transportation (CDOT) to use the metric system in plans and specifications for highways. On the surface this may seem to effect only the highway department. However, there are many other groups of professionals that this use of metrics will have an effect on. Appraisers, title companies and surveyors, to name a few, will all need to know how to use and convert their work to and from the metric system. It may be still be some time before metric measurements are used extensively in legal descriptions.

**Basis of Bearing**

When necessary, the meridian or cardinal direction can be established by using astronomical observations and calculations or by the use of a compass. There are many instances, however, where bearings can be determined from a monumented survey line that has already been established, such as a section line, quarter section line, or a lot or block line in subdivision plat. A bearing of a line can also be assumed or related to the grid of a map. Colorado requires that land surveys and legal descriptions using bearings include a statement identifying the source or otherwise explaining how the bearings were determined so that future surveys of the parcel can be retraced accurately. Presumably, other states have similar requirements. Basis of bearing statements can be incorporated into the description or added as an additional statement before or after the description.

Example of standalone basis of bearing statement: Bearings are based on the north line of the Northwest 1/4 of Section 30 to bear North 89°42’ East with all bearings contained herein relative thereto.
Example of basis of bearing statement incorporated in description: Commencing at the Northeast corner of Section 23, Township 6 North, Range 95 West of the 6th Principal Meridian; Rio Blanco County, Colorado; Thence North 89° 53’ 45” West, along the North line of said Section 23, a distance of 1326.89 feet to the point of beginning; Thence South 0° 06’ 15” West, a distance of 300.00 feet; Thence South 89° 53’ 45” East, a distance of 250.98 feet; . . . .

Whether or not a basis of bearing statement is specifically required by state law, it is always a good practice to expressly state the basis for the bearings rather than assuming that it will be implied from the calls in the description. This is because a land surveyor who is requested to retrace or survey a legal description without any express point of reference or basis of bearing, may be required to obtain bearings by astronomic observation. This could cause problems with the location “on the ground” of the description being surveyed if the bearing used at the time the description was written and the astronomic bearing are not exactly the same. At worst, the two lines could be in considerably different locations and might require legal action to correct. At best, the surveyor must spend additional time (usually at the client’s expense) to determine and/or confirm the basis for the original bearings.

Curves

Legal descriptions may not always have the luxury of using all straight lines to locate the boundary of a parcel of land. Many times curves are required for part of the description and must be described along with linear courses. There are several kinds of curves that may be encountered, such as: circular, compound, reverse, spiral or vertical. When describing a curve there are a number of the parts of the curve that must be included in the description to properly describe the curve. The most commonly used terms for describing parts of curves and their abbreviations include the following:

When describing a line with a curve, the distance and direction of the curve must be provided. This can be stated such as “thence on a curve to left having a radius of 205.76 feet…..” In some cases, the bearing of the long chord can be included to
provide more clarity. As was mentioned earlier with respect to bearings, it is often helpful to imagine yourself walking down the line as you describe a curve. If the line curves to the left or right, it is a curve to the left or right.

Example of a Curve Description: Commencing at the Southwest corner of Lot 7, Ridge Subdivision; Thence North 00°00'31" East, along the southerly line of said Lot 5, a distance of 149.06 feet; Thence North 89°59'29" West, a distance of 26.17 feet to a point of curve; Thence on a curve to the left having a central angel of 53° 36'35", a radius of 15.00 feet, an arc length of 14.04 feet and whose long chord bears South 63°12'14" West, a distance of 13.53 feet to a point of tangent……

Spiral curves are often encountered in highway work. This type of curve will have a changing radius and can be found, for example, on entry and exit ramps to and from a freeway. A vertical curve is also used in highways. An example of where a vertical curve is used would be a portion of a highway crossing a depression or valley. This type of curve not only incorporates the elements of a circular curve but also uses vertical elevations along the line.

It may, at times, be necessary to compute an element of a curve that is not provided in the description. In order to compute this curve information, some knowledge of trigonometry is required. It may be best to request the assistance of someone knowledgeable in this area if you are not comfortable with the computations. The use of curves can be confusing even to professionals with a surveying or engineering background.

**State Plane Coordinate Descriptions**
The Colorado State Plane Coordinate System is another method used to describe property although not very common in the past but becoming more popular due to the use of Global Positioning Systems (GPS). Currently, the State Plane Coordinate System is primarily used by land surveyors. The state is divided into three zones with a grid imposed upon a map projection. Coordinates, X & Y, (North & East) are assigned to the grid based on a mathematical relationship between the grid and the map projection. The system has not been used much in the past due to the many mathematical adjustments and computations required. Today, the
computer and GPS make it much more practical and cost effective to use but is not used by the layman much due to its complexities.

Included is a case involving a dispute regarding a conflicting legal descriptions on real property. The general description conflicted with the metes-and-bounds description and initially the court ruled that the general description prevailed. On appeal it was reversed with the appellate court citing that the metes-and-bounds description was more in line with the owner's intent.

Doris Virginia McGregor STRIBLING, Martha Lee Mcgregor, And Frank Bobbitt Mcgregor, Jr., Petitioners, v. MILLICAN DPC PARTNERS, LP, and Peach Creek Partners, Ltd., Respondents.

**Supreme Court of Texas.**

**OPINION DELIVERED:** March 20, 2015.

When the metes-and-bounds description in a deed conflicts with another, more general, description in the deed, which controls? In this boundary-dispute case, the court of appeals sided with the general description. But, because the metes-and-bounds description better indicates the parties' intent, and because the court of appeals' approach creates uncertainty in land title whenever a deed's general and specific descriptions differ, we reverse.

Millican1 and the McGregor2s are adjacent landowners. They dispute ownership of a 34.28-acre tract (the "Tract") in a heavily wooded area in Brazos County. Millican asserts record title to the Tract, but a long-standing fence places the Tract on the McGregor's side. The McGregors deny that Millican has record title, and, in the alternative, the McGregors assert adverse possession. Millican filed a suit to quiet title and declaratory-judgment action, and the trial court, finding that Millican did not have record title, granted summary judgment for the McGregors without reaching adverse possession. It ordered that Millican take nothing but allowed the McGregors to recover attorneys’ fees. See TEX. CIV. PRAC. & REM. CODE § 37.004(c) (authorizing declaratory-judgment actions in boundary-dispute cases).
The court of appeals, however, reversed, holding that Millican had record title to the 34.28-acre Tract, and remanded for the trial court to consider the McGregor's adverse possession claim. 433 S.W.3d 67, 68 (Tex.App.-San Antonio 2014). This appeal concerns only whether Millican has record title to the Tract.

This case turns on two deeds in Millican's chain of title: a 1945 Deed granting land from Roy Nunn to P.P. Prescott and a 1973 Deed conveying land from the Prescott family to E.T. Barrett and Joel Guedry. The 1945 Deed is straightforward, conveying 202 acres in the Thomas Henry Survey, Abstract No. 130, in Brazos County. These 202 acres were described by metes and bounds, and they undisputedly include the contested 34.28-acre Tract.

Whether the 1973 Deed subsequently conveyed the same 34.28-acre Tract included [458 S.W.3d 20] in the 1945 Deed is disputed. If it did not, then Millican does not have record title to the Tract. The 1973 Deed conveyed 4,943.75 acres, composed of three separate tracts. It described the first of these three tracts (the "First Tract") in two different ways. First, it listed nine smaller parcels, and their respective acreages, that ostensibly composed the larger "First Tract." Added together, the individual acreages of the nine parcels total 1,145.95 acres (though the Deed did not itself provide this sum). One of these nine parcels was "a 202 acre tract out of Thomas Henry Survey, Abs. No. 130, and described in a deed from Roy W. Nunn, to P.P. Prescott, of record in Vol. 137 Page 285 of the Deed Records of Brazos County, Texas." This was the same 202-acre tract from the 1945 Deed that contained the 34.28-acre Tract. In other words, in the 1973 Deed's general description, the Prescott family claimed to convey their entire 202-acre tract obtained through the 1945 Deed, including the 34.28-acre Tract.

In contrast, the 1973 Deed's metes-and-bounds description - purporting to "more fully describe[ it]" the First Tract - does not contain the 34.28-acre Tract. Rather, the 34.28-acre Tract is contiguous to the First Tract as described by the metes and bounds. Subsequent to the metes-and-bounds description, the 1973 Deed stated that the First Tract totals 1,167.203 acres.
Thus, the 1973 Deed contains two inconsistencies. First, the general description purports to convey the 34.28-acre Tract, whereas the metes and bounds do not. Second, the acreages of the parcels supposedly composing the First Tract total only 1,145.95 acres, but the 1973 Deed itself states that the total acreage is 1,167.203 acres. According to undisputed summary judgment evidence, the metes and bounds in the 1973 Deed accurately describe an area of about 1,167 acres. The source of the excess acreage is unclear, but no evidence exists that the Prescotts did not own it.

Neither party contends that the 1973 Deed is ambiguous, and we construe an unambiguous deed as a matter of law. Luckel v. White, 819 S.W.2d 459, 461 (Tex. 1991). We discern the parties' intent from the deed's language in its entirety "without reference to matters of mere form, relative position of descriptions, technicalities, or arbitrary rules." Id. at 462 (quoting Sun Oil Co. v. Burns, 125 Tex. 549, 84 S.W.2d 442, 444 (1935)).

We have long held that "[a]ll parts of a written instrument must be harmonized and given effect if possible, but in case of a conflict the more specific provisions will control over general expressions which are worded as being applicable to the same land." U.S. Enters., Inc. v. Dauley, 535 S.W.2d 623, 630-31 (Tex.1976).3 This rule of construction is not an arbitrary rule, but a means of discerning the parties' true intent. See Gulf Prod. Co. v. Spear, 125 Tex. 530, 84 S.W.2d 452, 455 (1935). When the specific description is clear, there is "no necessity for invoking the aid of the general description." Cullers, 16 S.W. at 1005.

For example, in Southern Pine Lumber Co. v. Hart, a deed's general description purported to convey the same land the grantor had obtained by a previous deed, but the metes and bounds described a smaller area. 340 S.W.2d at 779. We held the deed referred only to the smaller area. Id. at 780. Similarly, in Cullers v. Platt, a deed gave metes and bounds for the property being conveyed, stating that it was [458 S.W.3d 21] "all of [a certain] survey except 140 acres belonging to the Montgomery estate." 16 S.W. at 1004. In reality, the survey contained more land than was in the metes-and-bounds description or belonged to the Montgomery estate. Id. at 1005. Nonetheless, the specific description controlled and the deed
only conveyed the land within the metes and bounds, not the additional area allowed by the general description. Id.

The present case closely resembles Cullers and Southern Pine Lumber Co. The metes-and-bounds description in the 1973 Deed does not include the 34.28-acre Tract, but the general description, referring to a previous deed, does. As in Cullers and Southern Pine Lumber Co., the "deed ... contains an unambiguous description" and "[n]o reference to any other deed is necessary to locate the tract." S. Pine Lumber Co., 340 S.W.2d at 780. Millican urges that the general description in the 1973 Deed is more specific than those in Cullers and Southern Pine Lumber Co. because it not only referred to a prior deed, but also identified the property being conveyed as "a 202-acre tract." The call for acreage, however, "is the least reliable of all calls in a deed." Tex. Pac. Coal & Oil Co. v. Masterson, 160 Tex. 548, 334 S.W.2d 436, 439 (1960). Furthermore, the metes-and-bounds description is more specific and therefore better indicates the parties' intent. Millican's position would inject uncertainty into long-settled land records whenever the metes-and-bounds description conflicts with other language in the deed. The specific description controls.4

Millican asserts that reservations should be expressly made, not by implication. See Derwen Res., LLC v. Carrizo Oil & Gas, Inc., No. 09-07-00597-CV, 2008 WL 6141597, at *6 (Tex. App.-Beaumont May 21, 2009, pet. denied). Here, however, the question is not whether the 34.28-acre Tract was reserved from the conveyance, but whether it was included in the conveyance to begin with. Specific reservations are necessary in some situations, but not for the metes and bounds to control over a directly contrary general description. Indeed, had the 1973 Deed expressly stated that the 34.28-acre Tract was excluded, then the Deed's meaning would be clear without need to resort to a rule of construction.

This approach does not render the general description meaningless; the general description - referring to previous deeds - remains a helpful tool for tracing title. Schaffer v. Heidenheimer, 43 Tex.Civ.App. 366, 370, 96 S.W. 61, 62 (San Antonio 1906, writ ref'd); see S. Pine Lumber Co., 340 S.W.2d at 780; Coffee v. Manly, 166 S.W.2d 377, 379-80 (Tex.Civ.App.-Eastland 1942, writ ref'd).
It continues to be true, of course, that the metes-and-bounds description is not to be given controlling effect, when it is apparent from the language of the deed, read in the light of the surrounding circumstances, that the parties intended that the general description should control, or when the general description more surely indicates the true intention, or when the grantor's intention clearly and unmistakably appears from the language of the entire instrument. [458 S.W.3d 22] Ford v. McRae, 128 Tex. 106, 96 S.W.2d 80, 83 (1936) (citations omitted); see also Sun Oil Co., 84 S.W.2d at 445-46. Nevertheless, we have never held that there was a clear intent for the general description to control when directly contrary metes and bounds clearly defined an area owned by the grantor. Rather, the general description may be used to help interpret the specific description when the specific description is "defective or doubtful." Cullers, 16 S.W. at 1005,5 when the deed language evidences an intent to convey both the land covered by the metes and bounds and additional land described by the general description, Sun Oil Co., 84 S.W.2d at 443, or when the general and specific descriptions may otherwise be harmonized without sacrificing one for the other, see Am. Sav. & Loan Ass'n of Hous. v. Musick, 531 S.W.2d 581, 585 (Tex.1975).

Here, the metes-and-bounds description is not "defective or doubtful." Mere inconsistencies between the metes and bounds and the general description do not themselves render the metes and bounds doubtful. Otherwise, an unambiguous metes-and-bounds description would never, on its own, control despite an inconsistent general description. In this case, the metes and bounds in the 1973 Deed cannot be harmonized with the general description. The two conflict with each other, and the general description cannot "override a particular description about which there can be no doubt." Cullers, 16 S.W. at 1005.

The court of appeals below reasoned that the 1973 Deed should be construed to convey the greatest estate its terms permit. 433 S.W.3d at 73 (citing Lott v. Lott, 370 S.W.2d 463, 465 (Tex.1963)). The preference for the greater estate, however, cannot overcome a clear and unambiguous specific description. Indeed, in both Cullers and Southern Pine Lumber Co., we relied on the metes and bounds to hold
that the deeds conveyed less acreage than the general descriptions suggested. See S. Pine Lumber Co., 340 S.W.2d at 779-80; Cullers, 16 S.W. at 1004-05.

The court of appeals also held that the 1973 Deed incorporated the 1945 Deed by reference, indicating an intent to convey the entire 202-acre parcel from the 1945 Deed, including the 34.28-acre Tract. 433 S.W.3d at 73. The cases cited for this point by the court of appeals, however, do not focus on conflicts between general and specific descriptions. Instead, they discuss the statute of frauds, estoppel by deed, or general and specific provisions that can be reconciled.6 Although "a reference [458 S.W.3d 23] to a former deed is a valid means of describing land," Winters v. Slover, 151 Tex. 485, 251 S.W.2d 726, 728 (1952), a reference to a prior deed does not prevail over a clearly contrary metes-and-bounds description, S. Pine Lumber Co., 340 S.W.2d at 362-63.

The court of appeals' decision creates other difficulties. The 1973 Deed states that the First Tract was composed of 1,167.203 acres. The general description, however, refers to nine parcels, and their acreages (listed individually in the 1973 Deed) total only 1,145.95 acres. Thus, though the metes-and-bounds description excludes the 34.28-acre Tract, it conveys a larger area than the general description. If the court of appeals were right that the 34.28-acre Tract was conveyed despite the metes and bounds, does this also mean that only the smaller area described by the general description was conveyed, but not the larger area described by the metes and bounds? But surely such a conclusion would depart from the parties' true intentions as evidenced by the metes and bounds. For consistency's sake, the metes and bounds must control lest tracing title be reduced to guesswork about the parties' true intent years after the conveyance occurs. The metes-and-bounds description is better evidence of intent.

For all these reasons, the court of appeals erred by reversing the trial court's judgment. Accordingly, we grant the McGregor's petition for review and, without hearing oral argument, render judgment in their favor. We reverse the judgment of the court of appeals and affirm that of the trial court. TEX. R. APP. P. 59.1
A much older Texas Supreme Court Case has been used extensively as precedence on determining the veracity of conflicting surveys on land, Isaacs v. Texas Land & Cattle Co.

Isaacs et al v. Texas Land & Cattle Co.
99 S.W. 1040
Court of Civil Appeals of Texas. Jan. 30, 1907.
Rehearing Denied Feb. 27, 1907
Appeal from District Court, Bexar County; J. L. Camp, Judge.

BOUNDARIES 11 Description
Adjoining or adjacent lands. Tex.Civ.App. 1907

A survey of a tract of land called for the old surveys on every side thereof and for courses and distances without any distances being measured on the ground. The calls for the old surveys were the most material calls. Held, that the calls for the older surveys controlled, and included in the survey the land bounded by the old surveys though others had subsequently, pursuant to the scrap act made surveys within such boundaries.

Cobbs & Hildebrand, for appellants.
Ogden & Brooks, for appellee.
NEILL, J.

"The plaintiff in this case brings this suit to recover the balance due on the purchase money for certain surveys in block C, Gunter, Munson, Maddox Bros., and Anderson, in Hemphill county, Tex. The plaintiff, through its trustees, having sold the land to the defendants, and the note sued upon was given by the defendants as part payment of the purchase money, and to secure same a vendor's lien was reserved, which plaintiff seeks to foreclose. The defendants admit the purchase and sale and execution of the note, secured by a vendor's lien, but claim that they are entitled to credit on the note by reason of a deficiency in acreage of the lands purchased. Defendants claim that the sale was by the acre,
the purchase price being $1.25 per acre; that the deed to the defendants calls for 19,774 1/2 acres of land; that this was the acreage used in calculating the total amount of purchase money. The defendants further claim that, in order to make up the acreage called for in the deed, there was included in the calculation the land that was in 1903 surveyed for and attempted to be appropriated by Chas. Peet surveys 1 and 2, and Jasper Osteen survey 1. The defendants claim that the land covered by the Peet and Osteen surveys were not included within the true and proper boundaries of the surveys sold by the plaintiff to the defendants, and should not therefore, have been used in calculating the acreage for which the defendants paid. The plaintiff, on the other hand, claims that all of the land covered by the Peet and Osteen surveys was included within the boundaries of block C, Gunter, Munson, Maddox Bros., and Anderson, and that the defendants acquired good title to 0 of said land, through the plaintiff's trustees. At the request of the defendants the following findings of fact and conclusions of law were filed.

**Findings of Fact**

“(1) I find that block C. Gunter, Munson, Maddox Bros., and Anderson, Hemphill county, Tex., was located by an office survey and that the field notes of the various sections in said block were made out by or for W. H. Bonnell, deputy district surveyor of Bexar district, in an office at Sherman or San Antonio. In making these field notes Bonnell was guided by sketches showing existing surveys, and the public domain unappropriated thereby, and was also guided by information which he, Bonnell, had previously obtained by meandering the Canadian river, and making connections with the comers of existing surveys situated on and near the said river.

“(2) I further find that Bonnell did not actually run out on the ground any of the lines of any of the sections of block C, nor did he establish on the ground any of the comers thereof, and that he made out the field notes of the block intending to cover all the vacancy lying between the older surveys on the east north, west, and south; that he called in the field notes for these old surveys on every side, and also called for the course and distance between them, but did not measure any of the distance on the ground.
"(3) 1 further find that block C, according to the call for the field notes and the maps in the General Land 0-Tice is composed of a large number of contiguous sections extending from the western boundary of the G. H. & H. R. R. Co.'s surveys Nos. 3 and 4 on the east, and the eastern boundary line of block C, Gunter, Munson, Maddox Bros., and Anderson, Roberts county, on the west, a distance of about 10 miles or 19,000 varas. The actual distance on the ground between the above-mentioned boundary line of the O. H. & H. R. R Co.'s surveys and block C, Roberts county, is 1,365 varas greater than the distance called for on the field notes of block C, Hemphill county. Practically the same discrepancy exists between the actual distance on the ground and that called for in the field notes of block C, Hemphill county, between the western boundary lines of the W. H. Ragsdale and James Abraham surveys and the eastern boundary line of block C, Roberts county.

'(4) 1 further find that the western boundary line of the G. H. & H. R. R. surveys Nos. 3 and 4 and the western boundary line of the Ragsdale and Abraham surveys and the eastern boundary line of block C, Roberts county, were, at the time block C, Hemphill county, was located, and the field notes thereof made and returned to the General Land Office, unmarked lines and none of them were run out by Bonnell, but they were all capable of accurate ascertainment by running course and distance from well-known comers of the surveys mentioned or adjacent surveys. This is true of all the surveys upon which block C, Hemphill County abuts on the north, east, south, and west.

"(5) 1 further find that, if block C is constructed by running course and distance called for in the field notes from the eastern boundary line of block C, Roberts county, and disregarding the calls for all other old surveys, then all of the recent surveys under the scrap act in the names of Jasper Osteen and Chas. Peet would be included within the said block C, but this method of constructors block C would leave one vacancy lying west of the Ragsdale and Abraham surveys, and another along the southern and eastern side of block C, as shown on map I introduced in evidence by the defendants.

"(6) 1 further find that, if block C is constructed by running course and distance from the western boundary line of the surveys 3 and 4, G. H. & H. R. R., and the
Ragsdale and Abraham surveys, and disregarding all other calls for old surveys, then the land recently attempted to be acquired by Osteen and Peet by the surveys in their names under the scrap act shown on map 2 introduced by the defendants would not be included within the boundaries of block C, Hemphill county.

'(7) I further find that, if block C is constructed by running course and distance from the connection with the D. S. & C. R. R. surveys Nos. 1 and 2, and surveys disregarding all other calls for old surveys, then all of the Chas. Peet survey No. 2, and Jasper Osteen survey No. 1 would be included within block C, Hemphill County, but there would be a vacancy between the southern boundary line of block C and the northern boundary line of block 1, I. & G. N. R. R. Co. survey, which is called for in the field notes of block C, as its southern boundary line, and there would also be a conflict between the most northerly section of block C and the Abraham, Curtis, and other old surveys, which are called for in the field notes of block C, as its northern boundary.

'(8) 1 further find that if block C is constructed by making the calls for course and distance yield to, and conform to, the calls for the older surveys, then all of the land covered by the said surveys under the scrap act, being surveys 1 and 2 in the names of Chas. Peet, and survey No. 1 in the name of Jasper Osteen would be included within the boundaries of block C, and, as thus constructed, the portion of the block sold to the defendants would contain the acreage mentioned in the deed and upon which the calculation of the purchase price was made.

'(9) 1 further find that the calls for the older surveys on the north, east, south, and west of block C are the most certain material calls contained in the field notes, and more clearly disclose the intention of the surveyor as to the land intended to be appropriated, and that these calls should control the calls for course and distance which I find were inserted by conjecture, and I further find that the conflict in the calls for the older surveys and those for course and distance was caused by failure of the surveyor to measure the distance and by the mistake which he consequently made in estimating and calculating the distance between the older surveys.
'(10) I further find that all of the surveys in block C were long prior to the surveys made under the scrap act made for Chas. Peet and Jasper Osteen, patented by the state of Texas on the Bonnell field notes calling for the older surveys on every side, and that said block C was, as early as 1887, delineated upon the official maps of the General Land Office of Hemphill county, as the same were patented and as delineated said block C, included all the land attempted to be acquired by Chas. Peet and Jasper Osteen by their surveys under the scrap act, and that, as delineated and patented, said block C appropriated all the vacancy between the older surveys on the north, south, cast and west.

'(11) I further find that there was no fraud in this transaction or in the manner in which the survey was made by Spiller, but that said survey was so made under the honest belief and claim that it was the proper (manner) in which to make the survey of block C, and I further find that said survey was correctly made.

"(12) I further find that the sale by plaintiff to defendants was made by the acre, and the amount of the purchase money was ascertained by a calculation based upon the Spiller survey.

Conclusions of Law
"My conclusions of law based upon the foregoing facts are that, in order to give effect to the intention of the grant of the sections in block C, Hemphill county, as said grant is evidenced by the field notes, patents, and maps of the General Land Office, the calls for course and distance should yield to, and be made to conform to, the calls for the older surveys surrounding said block C, and, when so constructed, block C includes all the land attempted to be acquired by the recent surveys under the scrap act for Chas. Peet surveys Nos. I and 2, and Jasper Osteen survey No. 1.

"I conclude, therefore, that the defendants acquired a good title to all of said land by and under the deed from the plaintiffs trustees, and that the defendants are, therefore, not entitled to any deduction from the purchase price of the land.
"I therefore conclude that the plaintiff is entitled to a judgment for the amount of
the principal, interest, and attorney's fees herein sued upon, and a foreclosure of
the lien as prayed for."

The foregoing statement of the nature of this case, and conclusions of fact and
law, made by the trial judge, are, after considering all the assignments of error
calling such conclusions in question, adopted by this court. It is hardly necessary
to say that no other conclusions of law than those enunciated can be deduced from
the conclusions of fact stated, which are fully supported by the evidence. Boon v.
Hunter, 62 Tex. 582; Oliver v. Mahoney, 61 Tex. 610; Goodson v. Fitzgerald (Tex.
Civ. App.) 90 S. W. 898.

All of the assignments of error are overruled, and the judgment affirmed.
Writ of error denied by Supreme Court.

(Source: https://www.irwaonline.org/eweb/upload/0108B.pdf)
Lesson 8 Summary

A legal description must distinguish a particular parcel from all other parcels of land in the world. There are, generally, five methods used to establish this legal distinction: metes and bounds, rectangular survey, recorded plat, vertical land description, and reference to a previous record. In this lesson, we discussed all five of these methods, as well as the role of informal land descriptions in identifying particular properties.

Many of these methods for identifying a parcel are extremely complex. For this reason, we developed a system of informal reference based on street addresses, districts, and titles. We use this method when our need for practical simplicity supersedes our need for precision. An informal reference point is advantageous because it is easy to understand; the main drawback of this system is that it fails to uniquely identify a location. For example, there may be multiple properties identified by the address “123 Main Street” - in fact, there could be a 123 Main Street in every city or town that has a street by that name. All of these properties are distinct, but we cannot tell that just by looking at their addresses. In addition, informal references like addresses do not describe the size or shape of the lot, which is necessary for legal purposes.

Mettes and bounds is one method we might use to determine a legal land description. It distinguishes the exact dimensions and location of a lot in reference to a fixed monument, usually a small metal rod or a concrete or stone structure one to two inches in diameter. In the event that one of these monuments is destroyed, we record their exact location in reference to a nearby mark established by a government survey team. This ensures that no lot dimensions are lost, even if the monument itself disappears.

A developer using the metes and bounds method will describe direction in degrees, minutes, and seconds using the sexagesimal system, one form of units used to describe angular measurement. In this system, there are 360 degrees (°) in a circle, 60 minutes (‘) in a degree, and 60 seconds (") in every minute (thus 58°6’34" is read aloud as “58 degrees, 6 minutes, and 34 seconds”). The monument is described as the point of beginning or the point of commencement for the survey description. From this point, we
move clockwise from the monument around a parcel of land, describing size in feet and
direction in degrees, minutes, and seconds.

The rectangular survey method depends upon the longitude and latitude system of
mapping. Longitude lines, or meridians, run north-to-south, while latitude lines, or
parallels, run east-to-west. Certain longitude lines serve as principal meridians. For any
given principal meridian (a noted longitude line), there is an intercepting, specially-noted
latitude line, called a base line. Every 24 miles north and south of a base line, we name
a correction line (a standard parallel), which helps to ensure that our grid reflects the
curvature of the Earth’s surface. Analogously, every 24 miles east and west of a principal
meridian, we name a guide meridian. This creates 24-by-24-mile squares called “checks”
that we break down yet further into ranges and townships.

A range is a column created by drawing a parallel line every six miles east and west of a
principal meridian; the ranges are numbered consecutively as they move out from the
center axis created by the principal meridian. For example, the first range column to the
right (i.e., to the east) of the principal meridian is R1E (first range east), while the first
range on the left (to the west) is R1W. The second ranges are R2E and R2W, and so on.

Range columns are used in conjunction with township lines in the rectangular survey
system to locate specific parcels of land. Just as ranges run parallel to meridians
(longitude lines), township lines run parallel to base lines. Township “rows” are numbered
consecutively, north and south of a base line. For example, the first tier of townships
above (i.e., north of) a baseline are identified as T1N, the second tier is T2N, and so on.
Township lines intersect with range lines to create a grid of 36-square-mile parcels (six-
by-six-mile squares) called townships. Each 36-square-mile township is then further
divided into 36 individual square-mile sections that are numbered consecutively starting
in the upper right-hand corner. Each square mile contains 640 acres, and every acre has
43,560 square feet.
A recorded plat is a surveyor or developer's map detailing the borders of individual lots in a particular tract. On the plat, the developer will write a lot number for each parcel, a block number for each block (a collection of parcels), and a name or number for the tract (a collection of blocks). A plat is a legal form of property description only if the developer records it in the public record. Usually, the metes and bounds method of land description is used to distinguish each individual lot.

The vertical land description method is most commonly used when the air space above a lot or the mineral or subsurface rights below a lot require specific description (most likely because they are to be leased or owned by someone other than the owner of the surface rights). To use this method, we establish a base point, or datum, which is usually mean sea level, and then define heights up or down relative to that base point.

The last method of land description relies on a pre-existing, recorded, and legally distinguishing description. Although legal description must distinguish a particular parcel from all other parcels, it is not necessary to create a new legal description every time a particular parcel changes hands. A deed or mortgage could reference a parcel description in another recorded deed or mortgage using language similar to the following clause: "All land described in the deed from Person A to Person B recorded in (book, page, county, and state)...."

Please return to the course player to take the lesson quiz.