Chapter 2 - Describing the Land

Every tract of land in the United States has its own unique address. Just as a person's house address is one of a kind, so to, a tract of land in the middle of Ohio has its own distinctive *legal description*. Since petroleum land personnel deal with legal descriptions almost on a daily basis, understanding them becomes vital for those working in the field.

To make an error when dealing with a legal description would be like a man who purchased his first BMW. When he drove out of the car lot, he had a huge smile on his face; however, unknown to him, the paper work for the car was filled out incorrectly. The vehicle identification number (VIN) of another car was entered on his title papers and the VIN of the car he was driving had been entered on the registration papers for someone else.

A year later, the car is in need of a state emissions certificate. The emissions person checks the VIN on the car, grants the emissions certificate and sends the owner of the BMW to the motor vehicle department so that license plates can be renewed. The person working for the motor vehicle department checks the VIN on the registration against the VIN on the emissions certificate. The numbers don't match. As a matter of fact, the motor vehicle person tells the man that the BMW he is driving doesn't belong to him. Given this scenario, how difficult do you think it would be for the man to renew the license plates?

"Difficult!" you think.

Do you think the motor vehicle employee will grant a renewed license plate? The problem is simply an issue of a wrong number! Certainly, that does not seem like a catastrophic problem. However, VIN numbers are like legal descriptions. The VIN number is the unique finger print on a car and *a legal description becomes the unique finger print on a tract of land.*

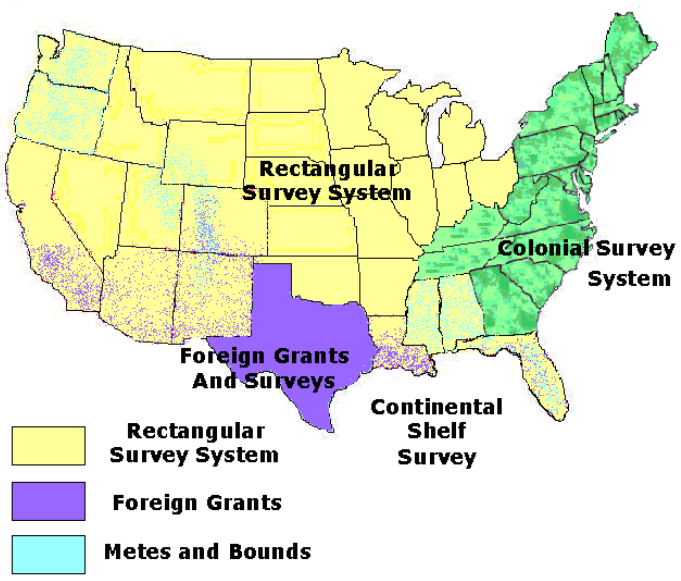
An error when dealing with a legal description can be significant. Legal descriptions must be accurately understood and more accurately described.

Since a handful of different surveying systems have been used in different parts of the country, these legal descriptions on legal documents mirror the way the lands were first surveyed.

In the United States, four different types of surveying took place. The colonial states used a metes and bound system, also known as the colonial survey system. Parts of Texas were surveyed under the Spanish survey system, other parts under the Mexican survey system, and still others under the Texas survey system. These systems also used a metes and bounds survey method. Most of the other states followed what is known as the rectangular survey system. The Gulf of Mexico was surveyed under the continental shelf survey system.

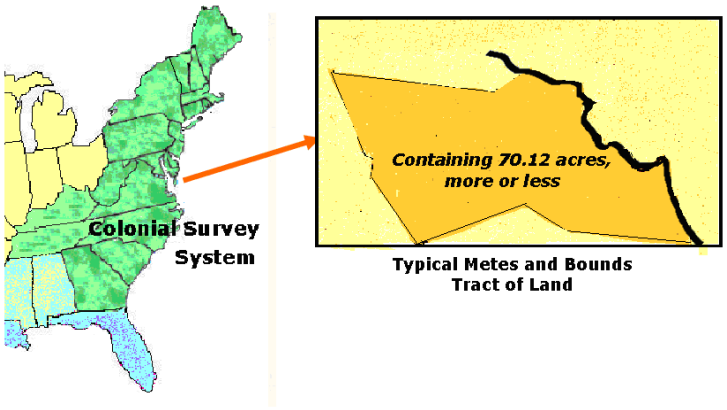
It is important to note that a metes and bounds legal description can be found in any state and certain tracts of land can contain metes and bounds descriptions as well as rectangular survey language.

Survey Methods used when granting lands



Colonial Survey System

Property, in the colonies, was conveyed and described through the metes and bounds survey system (also referred to as the colonial survey system). Simply put, a metes and bounds system often worked like this: the person making a claim to the land would step off the tract of land, moving from one landmark to the next and then would have the land surveyed and registered in a land office.



This was a survey method that had been utilized for centuries throughout Europe and other parts of the world and generally, arose when parties had free choice to the land in which they wanted to settle. The colonies were a perfect example. Vast regions of land were available and a colonist could pick and choose the best locations. The important thing to note is that the shape of the tract of land was irrelevant. It can be accurately stated that the best tracts of land seldom came in the shape of a perfect square.

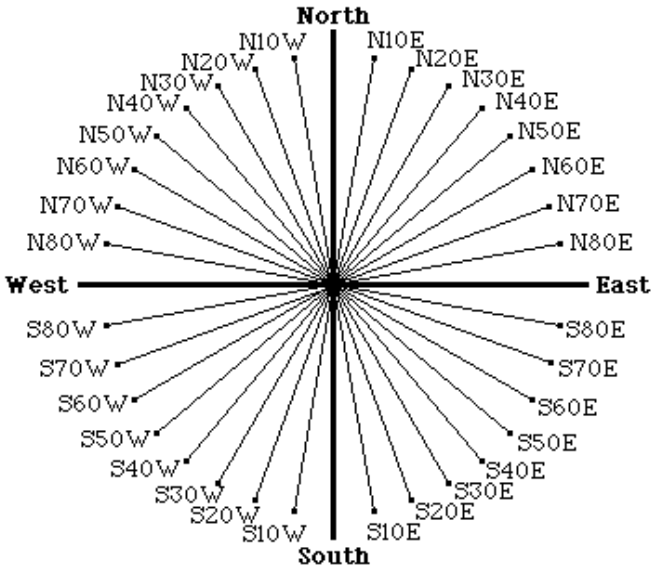
In the United States, metes and bounds legal descriptions can be found in any state; however, they are primarily found in the thirteen original states, Hawaii, Kentucky, Maine, Tennessee, Vermont, and West Virginia. They are also found in Texas, New Mexico and parts of California that were originally settled through Spanish and Mexican land grants. This survey system uses survey lines; natural land features such as trees, streams, wagon wheels, rocks; distances such as rods, links, chains, feet, yards and compass degree settings to describe plots of land.

Survey Lines

Survey lines will always contain the *point of beginning* and might be described as: “beginning at a large oak tree ……” Then using a compass, a surveyor or abstractor will proceed around the tract of land using directions, units of measurement and landmarks.

Compass Degree Headings

Following, are the compass degree headings showing the direction (north, south, east, or west with 10 degree settings between these main degree headings). An example would read, N70E.



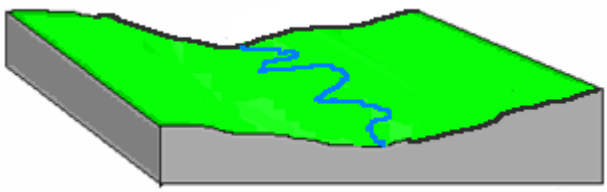
Distances

Distances are measured in a variety of units; the most popular of which are chains, poles, perches, and rods. Distances are often measured in 16 1/2 foot lengths which are interchangeably known as poles, rods, or perches.

Meanders

Lands bordering streams or rivers are often described with special language that includes the word *meander*. If you come across this term in a deed, one of several things may be implied:

The surveyor did not make a survey of the stream, and simply noted that the property had the meanderings of the stream as a boundary ("to an oak on the bank of said creek, thence up same with the meanders thereof to a double pine on the bank..."). Note that no heading or distance is given. Basically, the surveyor is saying "go up the creek for a while".



A typical Metes and Bounds description for a small parcel of land might use landmarks or use a compass:

Metes and Bounds Survey Method

Using Landmarks

Beginning at a large stone on the west bank of Redemption Creek; thence up the creek to an oak tree stump; thence in an easterly direction until you come to another oak tree stump; thence southeasterly until you come to a large rock in the field; thence southwesterly until you come to the point of beginning.

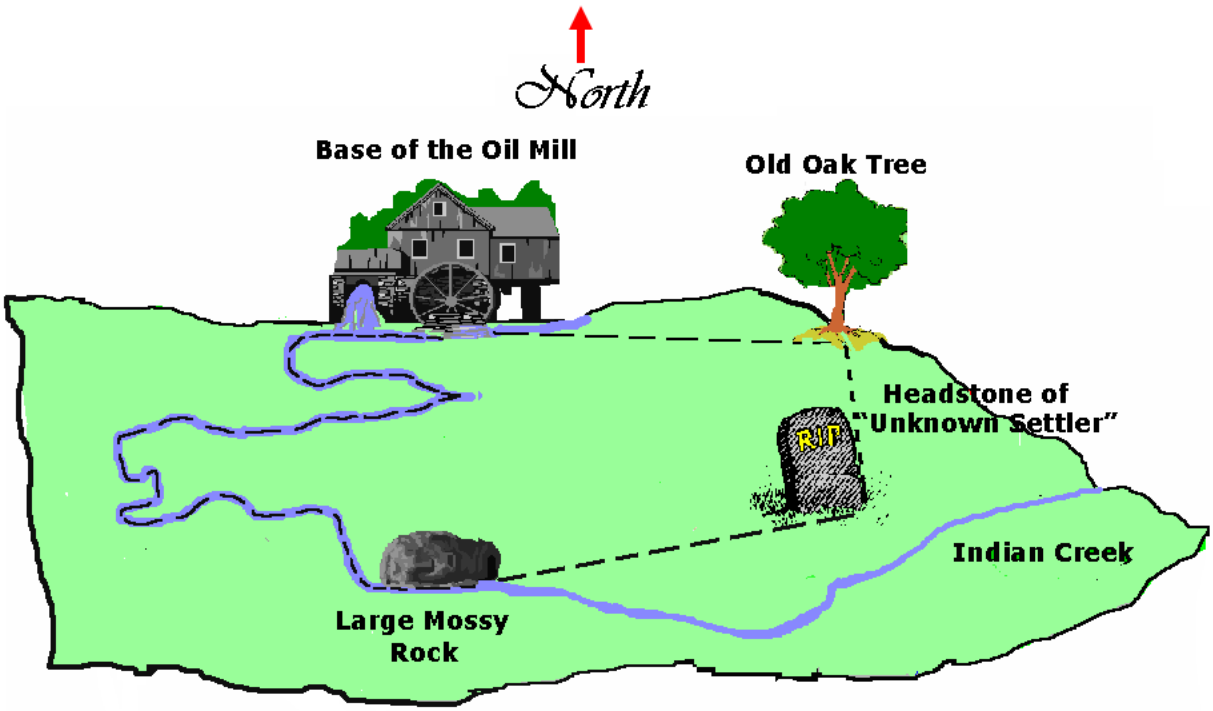
Using a Compass

Beginning at a large stone on the west bank of Redemption Creek; thence meandering up the creek to an oak tree stump; thence north 82° east 300 poles to another oak tree stump; thence south 55° east 87 poles to a large rock in the field; thence south 50° west until you come to the point of beginning.

EXERCISE 2:

Using the plat, write a metes and bounds description for the tract of land designated with the dotted line. Your description should contain the following:

1. The point of beginning
2. Meanders when following the river
3. Landmarks
4. Compass degree headings (use the compass degree template previously shown)



Foreign Grants and Surveys

Portions of our country had been previously surveyed and granted while under foreign occupation. Louisiana recognized early French and Spanish descriptions, particularly in the southern part of the state.

Much of Texas had been previously granted through the Spanish and Mexican survey method. California was similar to Texas in that the southern part of the state had been previously granted through Spanish land grants. These were called ranchos and Hawaii had long used a native survey system established years before its statehood.

Texas Land Grants, Surveys and Abstracts

To understand the Texas land description system, one should first take a look at the state's history often referred to as the "Six Flags" history. Prior to 1821, this large land area was a Spanish possession. Large chunks of land were surveyed under the Spanish rule and granted to individuals and described through a metes and bounds description. The largest tract of land conveyed this way contained 939 square miles or 600,960 acres and was conveyed to San Juan de Caricitas in Cameron County.

In 1821, the Mexican government overthrew the Spanish government. This new regime recognized the previous grants and continued to survey lands under a Mexican system. The lands again were conveyed under a metes and bounds method. It is important to note that this granting of land was not done in any specific methodical order. The location of the lands had little structure in relation to a bigger picture; therefore, one grant might exist with gaps of un-granted land lying between the nearest conveyed tract of land. Since the descriptions were based on metes and bounds rather than squares, parts of Texas appear to be a patchwork of land grants. Under the Spanish and Mexican governments, over 26 million acres were granted through this method.

Prior to 1835, the Republic of Texas formed a strategy to overthrow the Mexican government. A part of that strategy was to offer large tracts of land to any man who wished to enlist in the Texan militia in order to fight the Mexican government.

It is said that Davy Crockett enlisted with a promise of receiving 10,000 acres of land. Now, travel back in time to the year 1835 and try to imagine the difficulty in *accurately* surveying a 10,000 acre tract of land. Mistakes were often made and resurveying the land revealed many errors.

In 1835, the Mexican government was overthrown by the Republic of Texas and existed that way until 1846. After the war, the new Republic began selling land certificates for 50 cents an acre. Normally, those buying land

could pick and choose which parcels of land they wanted. They could also choose the shape of the tract of land. Again, metes and bounds became a big part of these lands and again, the individual conveyances had little structure as they related to other tracts of land.

This newly formed Republic provided in its Constitution that "all persons except Africans and Indians living in Texas on Declaration of Independence are entitled to a headright Grant…heads of families one league and one labor, single men seventeen years or older, one third league."

A League = 5000 square varas or about 4,430 acres
A Labor = 1000 square varas or about 177 acres
A vara = 2.77 feet

The vara (Spanish for yard and defined as three feet - is sometimes referred to as the *stride of a mule*) became one of the standard measurements in describing these tracts of land. The reason a vara referred to the stride of mule rather than the stride of a man, was based on practical logic. While measuring large tracts of land, a man's stride would become shorter in length as he became tired. The stride of a mule would stay consistent throughout the day. However, in East Texas, the length of a vara differed from the length of a vara in West Texas and differed from some of the older Spanish land grants. Today, the original length of a vara is unknown and remains a measurement of some uncertainty. Because of this issue, in 1919 the Texas legislature adopted the length of 33.3333 inches per vara.

Instead of using the full metes and bounds description while confining land, it became common to reference other items such as a block number, survey name, abstract number, section number the particular deed in which the land was first described or the original patentee. Texas legal descriptions might contain several of the items mentioned. The following is an example of a Texas land description:

The north 102.34 acres of the west 277 acres of Block A-2, Section 77, Abstract #75, Southern Union Railway Company Survey, in Van Zandt County.

Block Name or Number

A block is the larger tract of land that consists of a group of surveyed tracts, each having a section number. Blocks were usually named after the party who surveyed the land (this was often a land agent or railroad) or were given an identifying number. Surveys within the block were usually consecutively numbered. The block/section method was done primarily in west Texas and the panhandle and one block of land can exist in more than one county.

Section

In Texas, the term section is often used to describe the surveys done within a particular block. A section of land does not necessarily contain 640 acres nor is it necessarily square in size. A section can be named Section 325, contain 1,000 acres and resemble an octagon.

Stand Alone Survey

East Texas contains what is known as “stand alone surveys”. These were surveys that were not intended to become a part of a block. These surveys are generally named after the original grantee.

Abstract Number

An abstract may be either all or a part of a section or may contain the entire stand alone survey. Each original land grant was assigned an abstract number at the time of the original conveyance, in order to keep track of subsequent conveyances within the original grant. The term abstract refers to an original land survey. The number for each abstract is unique within each county.

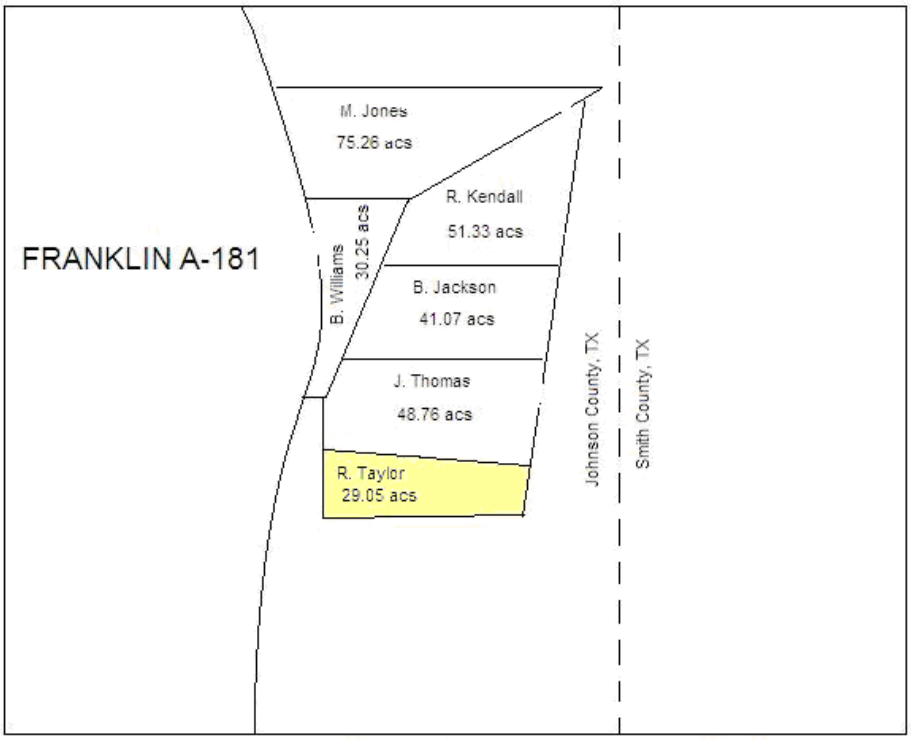
In order to locate the tract of land in our example,

> *The north 102.34 acres of the west 277 acres of, Block A-2, Section 77, Abstract #75, Southern Union Railway Company Survey, in Van Zandt County.*

one must first locate the county, find the area surveyed by the Southern Union Railway Company, locate Block A-2, locate Section 77, locate Abstract #75, and then locate the north 102.34 acres in the west 277 acres.

Furthermore, a legal description might be shown as:

> *29.05 acres, more or less, Franklin A-181 survey, located in Johnson County, Texas. The same tract of land conveyed to Jim Johnson in a particular deed found Book 37 Page 125 in the county clerk and recorder’s office in Johnson County, TX.*



M. Franklin Abstract Survey, Johnson County, TX. - 01/07/1994

Rather than describing the tract of land in detail, the description simply refers back to the description found in a certain book and page of the county records.

When legal descriptions are referenced, it is very important to pay attention to the book, page and county in which the deeds were recorded. For example, two deeds might contain the exact amount of acreage, reference the same abstract name and number and have been recorded in the same county and yet be describing two separate tracts of land:

Without a book and page reference, determining if these two deeds are referencing the same tract of land or two different tracts of land can be very difficult. This is why recording information in a legal description is imperative. It allows an examiner to pinpoint a particular tract of land in a county and state.

Rectangular Survey System

In 1785, the United States government began a new way of surveying that would revolutionize the metes and bounds and foreign land grant approach. The method was called the rectangular survey system and would simply divide land in squares. There would be no more irregular tracts of land or describing one's property line as running from *the "old oak tree to the large mossy rock"*.

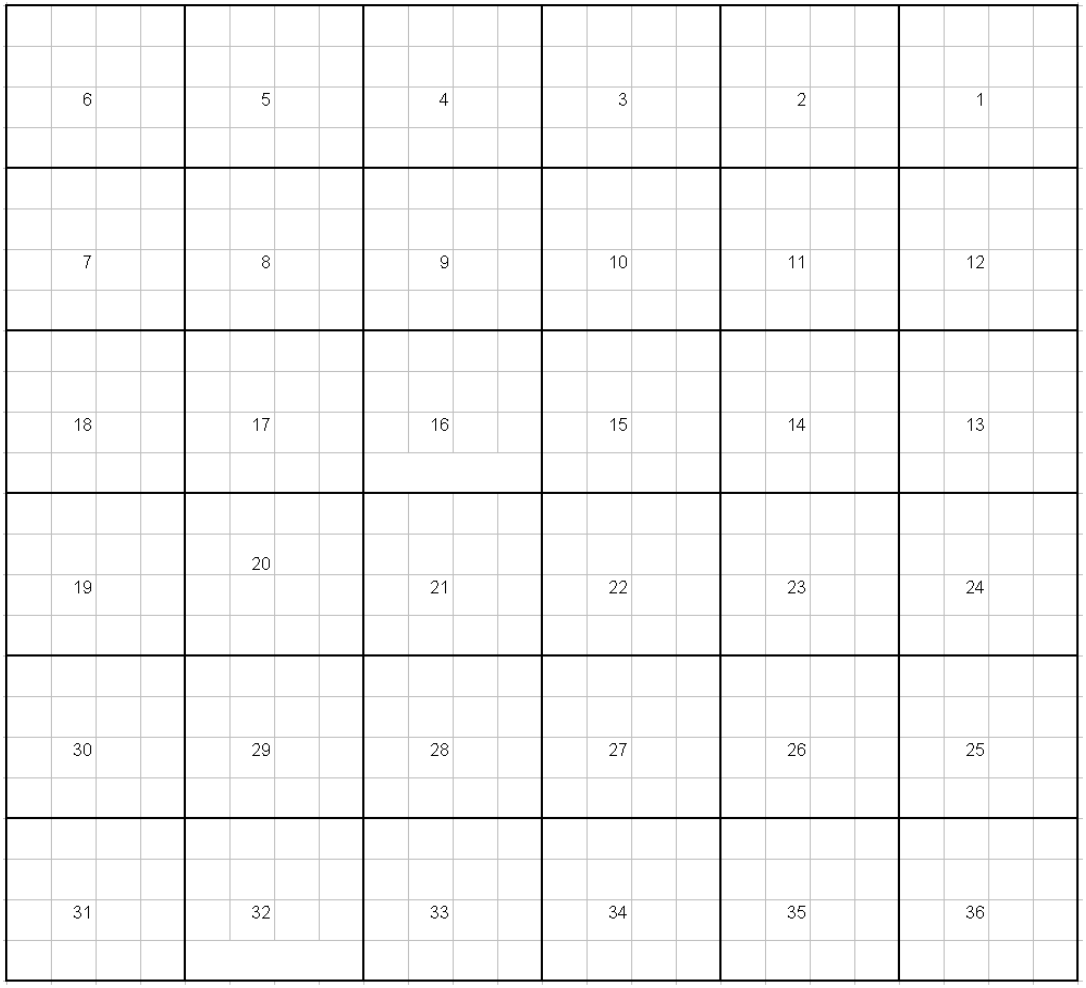
This new survey system was a methodical and simplified plan for surveying. It was established under *The General Land Ordinance of 1785* and can also be called The Jeffersonian Survey System.

Although this new approach to describing land was simple, methodical and did away with many of the issues created in the metes and bounds approach, not all parties were on board with the new system. Picture yourself as a pioneer in 1785 who wanted to buy a 160-acre tract of land. Would you rather pay for the irregular tract of land that ran up the lush river valley with fertile meadows on either side or would you rather buy the 160-acre *square* tract of land that contained only a portion of the river valley, a portion of the fertile meadows and most of the vertical hill above the valley?

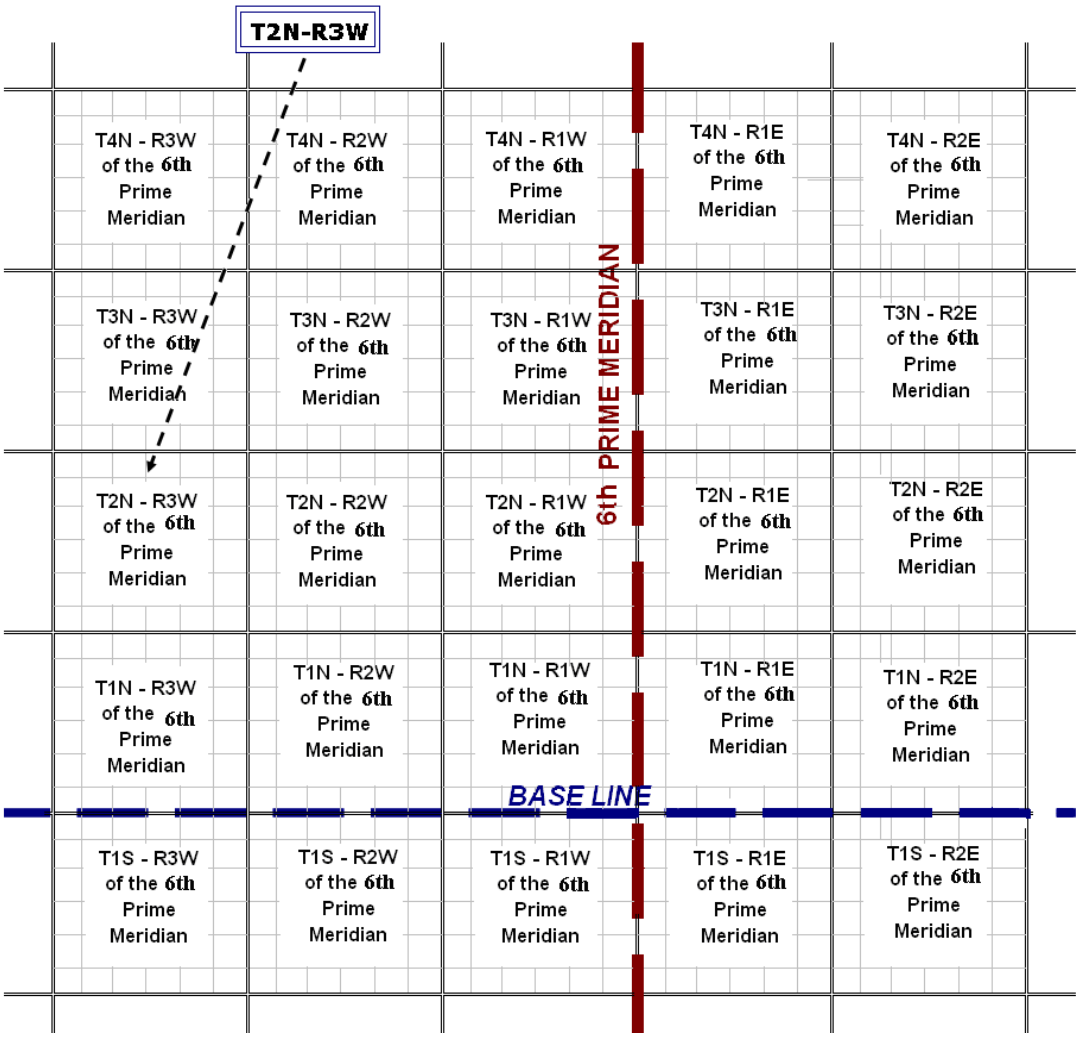
> The rectangular survey method eventually caught on and it is the method still used in most of the United States today.

This system divided the land into squares which were one mile on each side and were called "sections." Thirty-six sections were grouped together, six sections north to south and six sections east to west. This grouping was referred to as a *township* and *range*. Each of these sections was numbered in a precise manner beginning with Section #1 and ending with Section #36.

Normal 36-Section Township and Range



Townships and ranges were also numbered in a specific manner. The townships and ranges (or groups of 36 sections) were lined up next to each other running in a numbered sequence north, south, east or west. Each group was named sequentially north and south from a base line and named sequentially east or west from a prime meridian line.



Normal Township and Range Grid

If a tract of land was found in the *second* group of these sections *north* of the base line, it would be called *Township 2 North* (T2N). If the same tract of land was found in the *third* group *west* of the prime meridian line, it would be called *Range 3 West* (R3W).

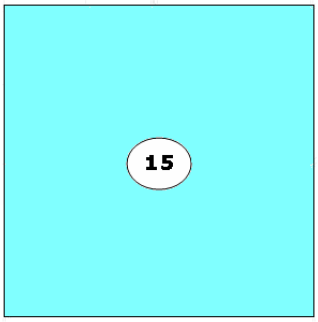
From the grid system, locate Township 4 North, Range 1 East. Locate T1S-R2W.

The Naming of Land

A land description, in legally acceptable terms, will determine exactly where land is located and will determine another important aspect of the land professional's job—how many acres are within a particular tract of land.

Section of Land

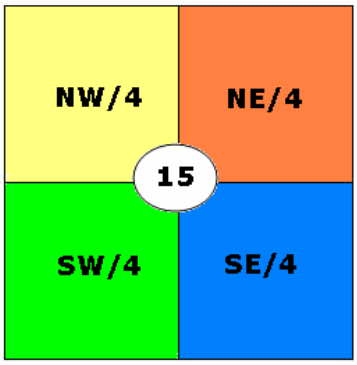
Much of the United States has been measured, surveyed and categorized into "sections" of land. Each section of land generally contains 640 acres. A section of land is usually square and is divided into quadrants such as the NE/4, NW/4, SW/4 and SE/4. A section of land is one mile in length on each of its sides or is one mile square (Illustrated as Section 15.)



1 MILE SQUARE
640 ACRES

Quarter Section

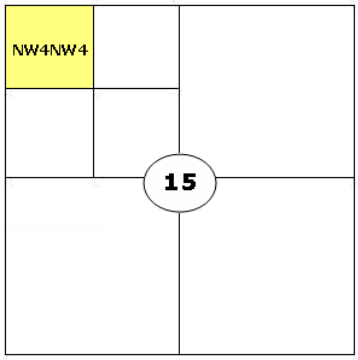
A quarter section is ¼ of a section of land. Generally, quarter sections contain 160 acres or ¼ of 640 acres. Quarter sections are named by where they lay in the section. If the quarter section lies in the North West quadrant of the section, it is referred to as the NW/4. The SW/4 lies in the South West quadrant. The NE/4 lies in the North East quadrant. The SE/4 lies in the South East quadrant.



¼ of the Section
160 ACRES

Quarter/Quarter Section

A quarter/quarter section is ¼ of a quarter section. Generally, quarter/quarter sections contain 40 acres or ¼ of ¼ of 640 acres. Quarter/quarter sections are named by where they lay in the quarter section. If the quarter/quarter section lies in the North West quadrant of the North West quadrant, it is referred to as NW/4NW/4. If the quarter/quarter section lies in the South East quadrant of the North West Quarter, it is referred to as the SE/4NW/4.



¼ of ¼ of the Section
40 ACRES

Describing a Rectangular Legal Description

A particular tract of land might read: Township 16 North, Range 90 West, Section 24: SE/4NE/4NW/4

First, the Township number is identified (T16N); next, the Range number (R90W); next, the Section number (Section 24) and then the part of the section that is under analysis (SE/4NE/4NW/4).

Legal Descriptions follow a methodical, logical pattern. This pattern is similar to the pattern used when addressing letters or packages. For instance, you might be sending your Aunt Betty a birthday card. You would address the envelope as follows:

Aunt Betty Smith
123 South Main Street
Cutler, North Dakota

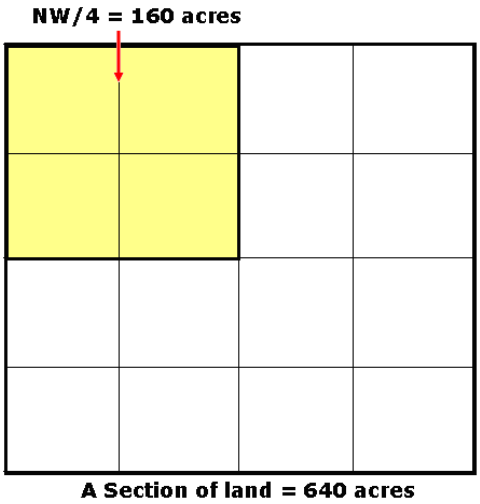
Notice that this address has five parts.

- First, you would name the recipient or Aunt Betty. Your aunt represents the smallest part of the legal description.
- Second, is the house number, 123. This describes the house on the street and represents the *next* largest part of the address.
- Next, you would have described the street (*South Main Street)*. The street is the next largest item in the description.
- Next, you would have described the city (*Cutler)*. The city is larger than the street but is smaller than the state in which it is located.
- Last, you would have described the state. The state is the largest part of the description.

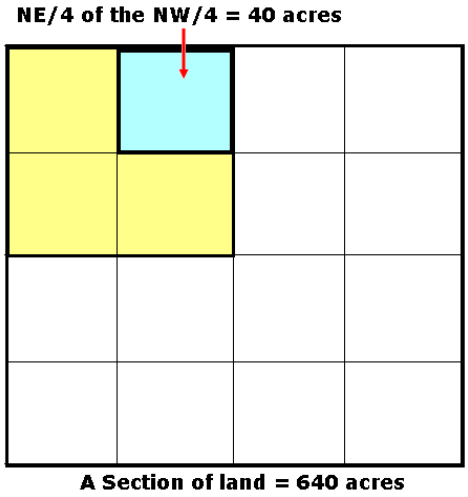
When describing a tract of land as previously referenced, one must use a similar order as set out on the envelope to your Aunt Betty.

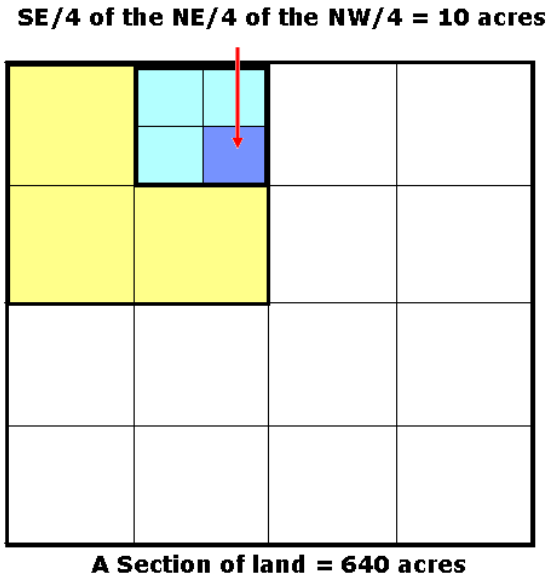
For instance, a tract of land might be described as the SE/4NE/4*NW/4*.

Just as North Dakota (the largest part of your Aunt Betty's address) is referenced last, so too the NW/4 is the largest part of the referenced description and is written last. The NW/4 contains 160 acres.

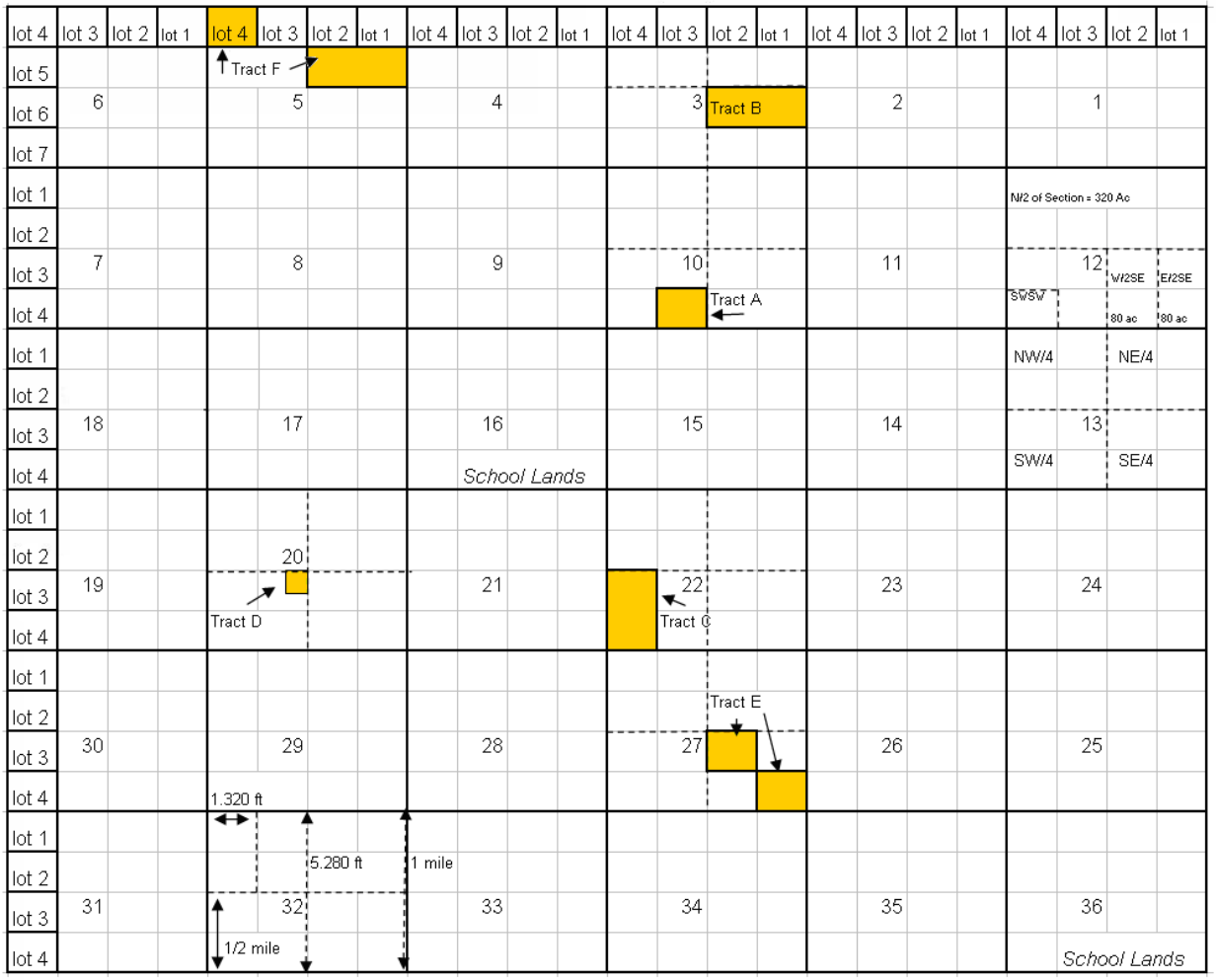


Cutler is a city that falls within the state of North Dakota and is the second largest part of the address. So too, the NE/4 of the NW/4 falls within the boundary of the NW/4 and is the second largest part of the legal description. This part of the description is written second to last. The NE/4NW/4 contains only 40 acres.





Using the same method, the SE/4 of the NE/4 of the NW/4 is named. This is the smallest tract of land and is found within the NE/4 of the NW/4. This tract of land contains 10 acres and can be written as the SE/4NE/4NW/4.



Township 23 North, Range 15 West

Using the plat, write the proper legal description for each of the tracts of land.

TRACT A is described as

_____

TRACT B is described as

_____

TRACT C is described as

_____

TRACT D is described as

_____

TRACT E is described as

_____

TRACT F is described as

_____

TRACT F contains Lot 4. Let's say that Lot 4 contains 40.25 acres.

TRACT A = _____ acres TRACT D = _____ acres

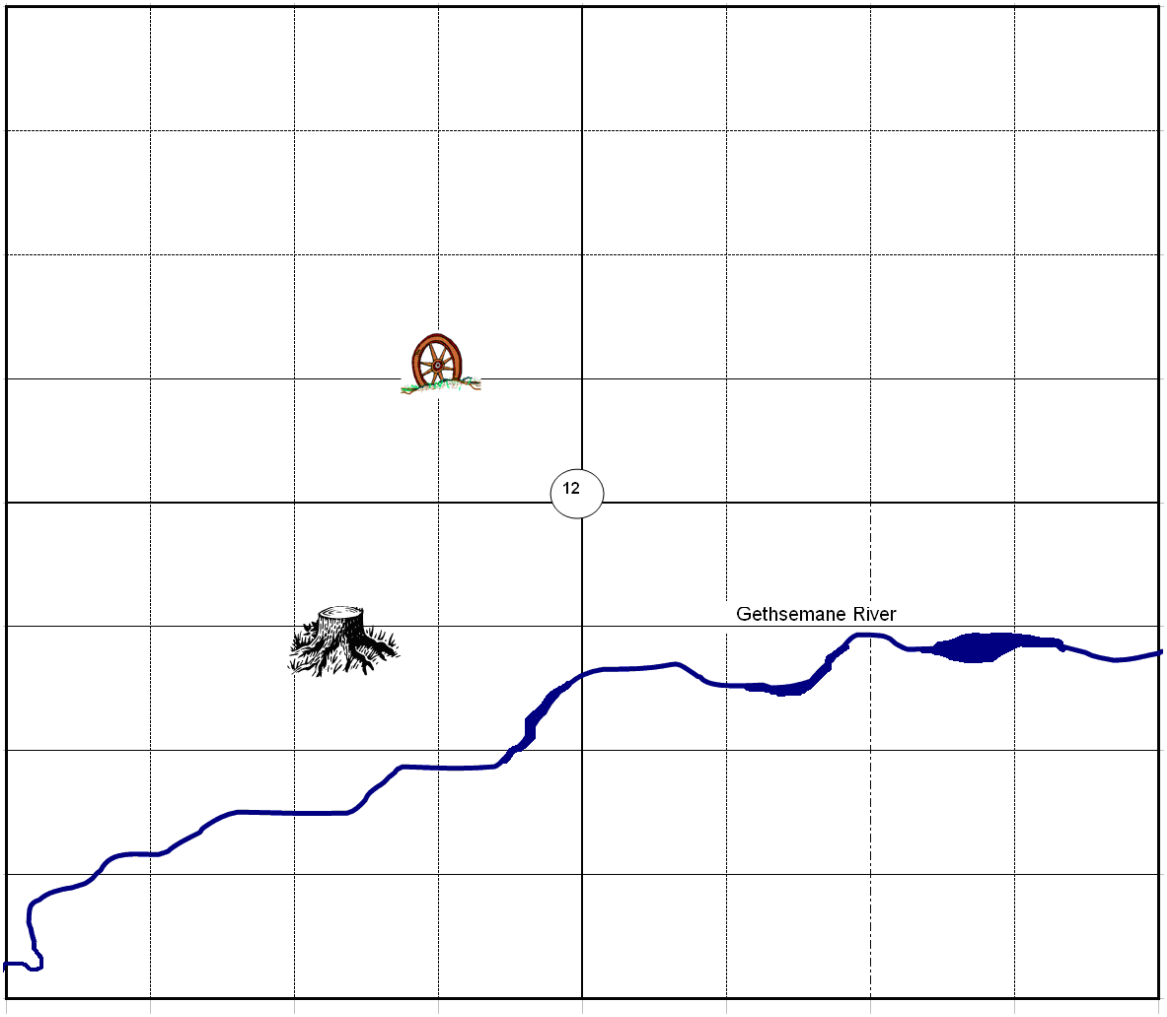
TRACT B = _____ acres TRACT E = _____ acres

TRACT C = _____ acres TRACT F = _____ Acres

EXERCISE 3:

Many tracts of land mix both Metes and Bounds and the Rectangular Survey System. Using the plat, outline the tract being described:

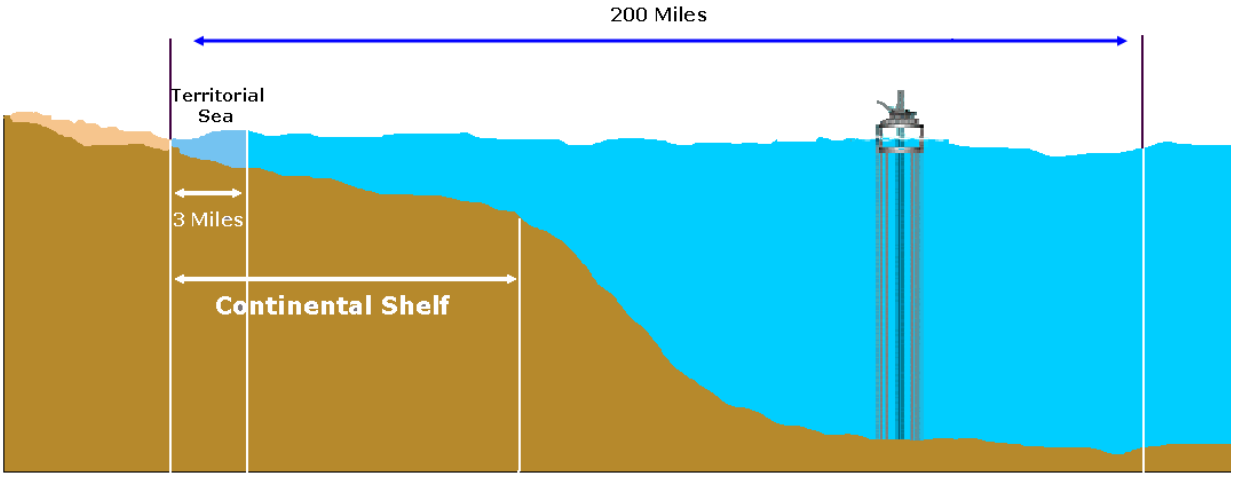
Practice Metes & Bounds
Read the description below and then shade in the land being described



That part of Section 12 described as follows: Beginning at an old wagon wheel buried half-way in the dirt, located at the NW corner of the SE/4SE/4NW/4 which is the point of beginning (POB); thence West 90 degrees 1,320 feet; thence South 10 degrees East 660 feet; thence South 50 degrees East 700 feet to the stump of an old oak tree; thence South 30 degrees West to the north bank of the Gethsemane River; thence meandering up the river until you come to the East line of the SW/4; thence North 34 degrees West to the point of beginning.

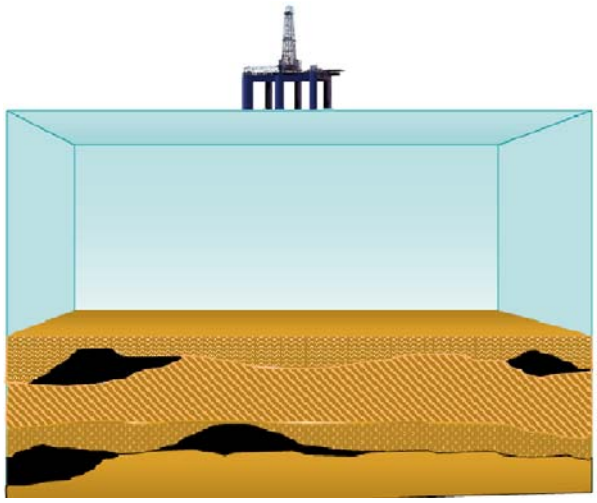
Outer Continental Shelf

Outer continental shelf (OCS) is a term that refers to “all submerged lands lying seaward and outside of the area of lands beneath navigable waters of each of the respective States subject to the jurisdiction and control of the United States.” In 1958, the definition was expanded to include “areas lying seaward of the territorial sea to a depth of 200 meters (656 feet) and beyond”.



US Department of the Interior

Those outer continental shelf lands leased by the Federal Government are lands, generally, three geographical miles from a state’s coast and extend to a line approximately 200-300 miles offshore. The three geographical miles, owned by the individual states, were established in 1702 when it was determined that a cannon ball could travel approximately three miles and that the state could protect its land into the ocean as far as a cannon ball could travel. The exception to this rule is the state of Texas and the west coast of Florida whose boundaries are set at nine nautical miles from the shoreline.

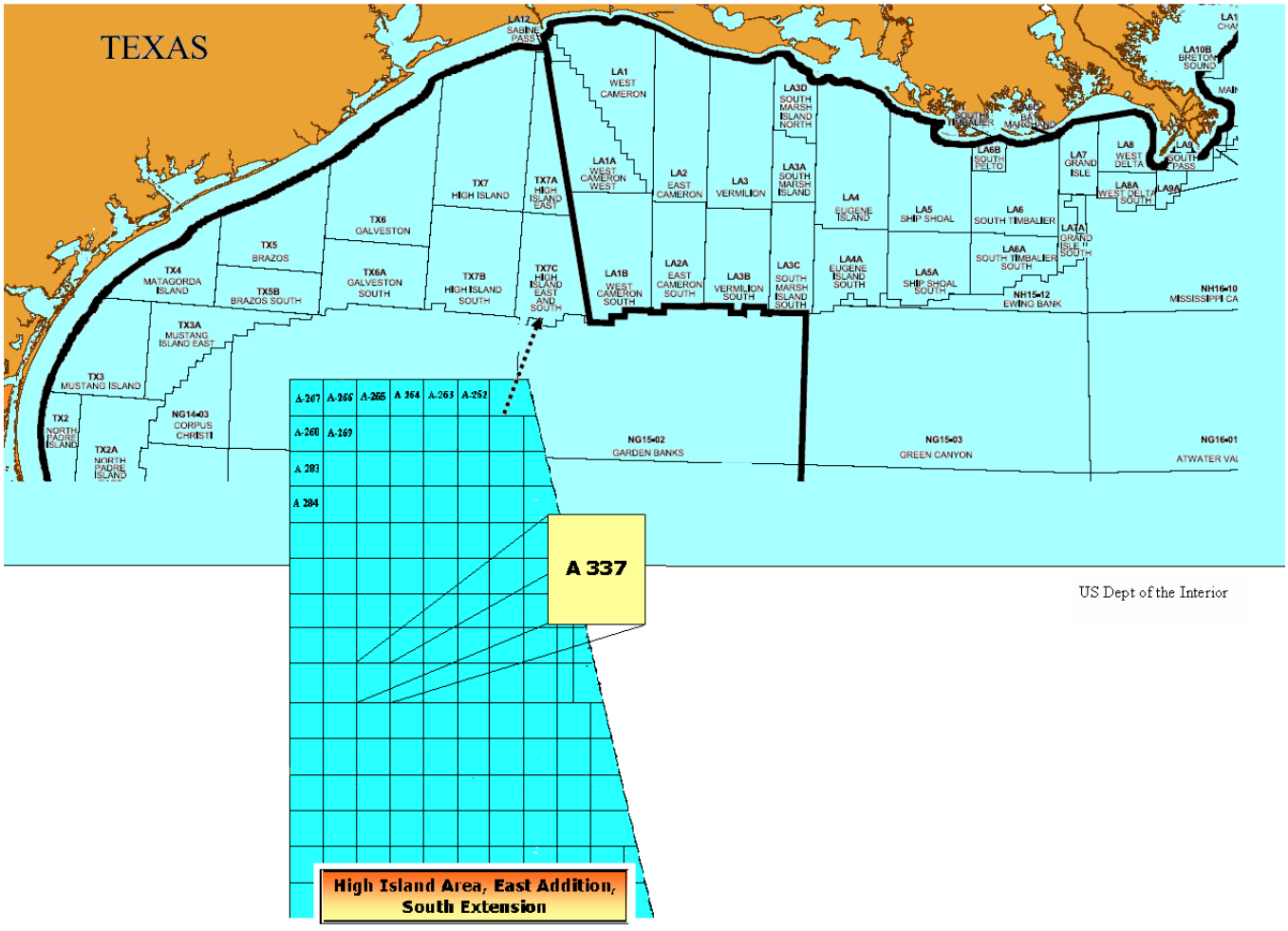


Although the outer continental shelf runs along the Atlantic coast, the Pacific coast, the Gulf of Alaska and the Gulf of Mexico, most of the oil and gas leases granted by the government are located in the Gulf of Mexico. These leases account for approximately 30 percent of the oil and over 20 percent of the natural gas produced domestically. The

department which oversees these 1.76 billion acres of outer continental shelf lands is the Minerals Management Service (MMS).

A grid system, similar to the rectangular survey system is used to describe the areas of the OCS. These areas are identified by area names and block numbers. The area names are based on onshore landmarks or nearby cities. The blocks are identified with a distinct alphanumeric numbering system (as seen in the illustration as High Island Area, East Addition, South Extension, Block A337).

A true section of land, in the rectangular survey system, is a perfect square and contains exactly 640 acres. For OCS lands, a block may or may not be in the shape of a square and can contain approximately nine square miles (between 5,000 to 5,769 acres).



EXERCISE 4:

Based on the tract of land and the pioneer owner you chose in exercise #1; choose the appropriate conveyance (Central Pacific Railroad Deed, United States of America Patent, or North Dakota State Conveyance.) Fill out the proper pioneer name on the conveyance and then properly describe the land using the rectangular survey method.

1. If you chose to be Toby Jenkins and acquired title to Tract 1, you should use the Central Pacific Railroad Deed.
2. If you chose to be Samuel Osborn and acquired title to Tract 2, you should use the United States of American Patent similar to those used prior to 1916.
3. If you chose to be Sarah Murphy and acquired title to Tract 3, you should use the North Dakota Land Conveyance.
4. If you chose to be Debra Perkins and acquired title to Tract 4, you should use the United States of American Patent form similar to those used after 1916.

Tract 1

Central Pacific Railroad Land Deed

Know all men by these presents:

That on this date, _____the Central Pacific Railroad, party of the first part, in consideration of the sum of one and more dollar ($1.00) cash in hand paid, the receipt of which is hereby acknowledged, do hereby grant, bargain, sell and convey unto _____, party of the second part, the following described real property and premises situated in Millard County, North Dakota to-wit:

Excepting and reserving, however, unto the Central Pacific
Railroad all the coal and other minerals in the lands so entered and conveyed, together with the right to prospect for, mine, and remove the same as provided by law.

Tract 2

Record of Patents (before 1916)

The United States of America

Whereas, a Certificate of the Register of the land Office at Bismarck, North Dakota has been deposited in the General land Office, whereby it appears that, pursuant to the Act of Congress of May 20, 1862, "To Secure Homesteads to Actual Settlers on the Public Domain," and the acts supplemental thereto, the claim of (Name of Claimant-Homesteader)

_____

Has been established and duly consummated in conformity to law, for the following tract of land located in Millard County, North Dakota (legal description)

NOW KNOW YE, That there is, therefore, granted by the UNITED STATES unto said claimant the tract of Land above described; TO HAVE AND TO HOLD the said tract of Land, with the appurtenances thereof, unto the said claimant and to the heirs and assigns of the said claimant forever; subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and right to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of courts, and also subject to the right of the proprietor of a vein or lode to extract and remove his ore therefrom, should the same be found to penetrate or intersect the premises hereby granted, as provided by law. And there is reserved from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States.

IN TESTIMONY WHEREOF, I, Benjamin Harrison, President of the United States of America, have caused these letters to be made Patent, and the seal of the General Land Office to be hereunto affixed.

Tract 3

North Dakota Land Conveyance

Know all men by these presents:

That on this date, _____the State of North Dakota grantor, in consideration of the sum of one and more dollar ($1.00) cash in hand paid, the receipt of which is hereby acknowledged, do hereby grant, bargain, sell and convey unto _____, grantee, the following described real property and premises situated in Millard County, North Dakota State to-wit:

Tract 4

Record of Patents (after 1916)

The United States of America

Whereas, a Certificate of the Register of the land Office at Bismarck, North Dakota has been deposited in the General land Office, whereby it appears that, pursuant to the Act of Congress of May 20, 1862, "To Secure Homesteads to Actual Settlers on the Public Domain," and the acts supplemental thereto, the claim of (Name of Claimant-Homesteader)

_____

Has been established and duly consummated in conformity to law, for the following tract of land located in Millard County, North Dakota (legal description)

NOW KNOW YE, That there is, therefore, granted by the UNITED STATES unto said claimant the tract of Land above described; TO HAVE AND TO HOLD the said tract of Land, with the appurtenances thereof, unto the said claimant and to the heirs and assigns of the said claimant forever; subject to any vested and accrued water rights for mining, agricultural, manufacturing, or other purposes, and right to ditches and reservoirs used in connection with such water rights, as may be recognized and acknowledged by the local customs, laws and decisions of courts; and there is reserved from the lands hereby granted, a right of way thereon for ditches or canals constructed by the authority of the United States. Excepting and reserving, however, to the United States all the coal and other minerals in the lands so entered and patented, together with the right to prospect for, mine, and remove the same pursuant to the provisions and limitation of the Act of December 29, 1916.

IN TESTIMONY WHEREOF, I, Woodrow Wilson, President of the United States of America, have caused these letters to be made Patent, and the seal of the General Land Office to be hereunto affixed