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Understanding Legal Land Locations



Surveyor & equipment early years in northeast BC.

Introduction

The goal of this factsheet is to increase understanding of how land locations are described and how to read the notation to find the parcel of land.

British Columbia has a long and colorful history of trying different land surveying systems and methods. There are wonderful descriptions of the way BC landscapes and politics challenged 9 systems that were tried. There were also additional methods specific to areas in the Kootenays and near railways that didn't fit into any system (see W.A. Taylor page 4).

The system most commonly used in our region is based on the Dominion Land Survey (DLS) system. The Dominion Land Survey system is a way to lay land out into uniform parcels in the western provinces.



Surveyor crew on horseback on McConnell Trail in the snow. Photo credits: Frank Cyril Swannell from Royal BC Museum Archives.

The system was modified from the one used in the mid western US, with the main change to eliminate road allowances from agricultural land. Because of the mountainous terrain in British Columbia, not all of the province was surveyed with this system, but the majority of the Peace River Block was.

“Professional land surveyors have played a key role in the development of British Columbia... Their concomitant role as explorers, geographers, and naturalists was also important to the province's history.”
~ Corporation of Land Surveys of the Province of British Columbia

Peace River Block

The Peace River Block was granted to the Dominion government as a railway subsidy grant of 3 1/2 million acres. This was to make up for lands referred to as the Railway Belt, that had previously been transferred to the province. The Peace River Block is located between the sixth and seventh meridian and referred to as west of the sixth meridian. The area of this “Block” is 72.4 miles in latitude by 75.7 miles. The north and south boundaries run at right angles to the British Columbia - Alberta border.

Within the meridians of the Peace River Block, the land parcels are further divided into townships, then sections and finally quarter sections.

There are areas outside this block such as near Prespatou or Tumbler Ridge and along the Alaska highway that were considered unsuitable for dividing according to the “rigid road system” of the prairies. These areas were surveyed using District Lot system. However, this forage factsheet will be focusing on the Dominion Land Survey System.

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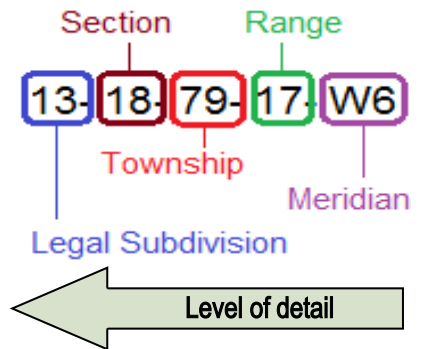
www.peaceforage.bc.ca

**Peace River Forage Association
of British Columbia**



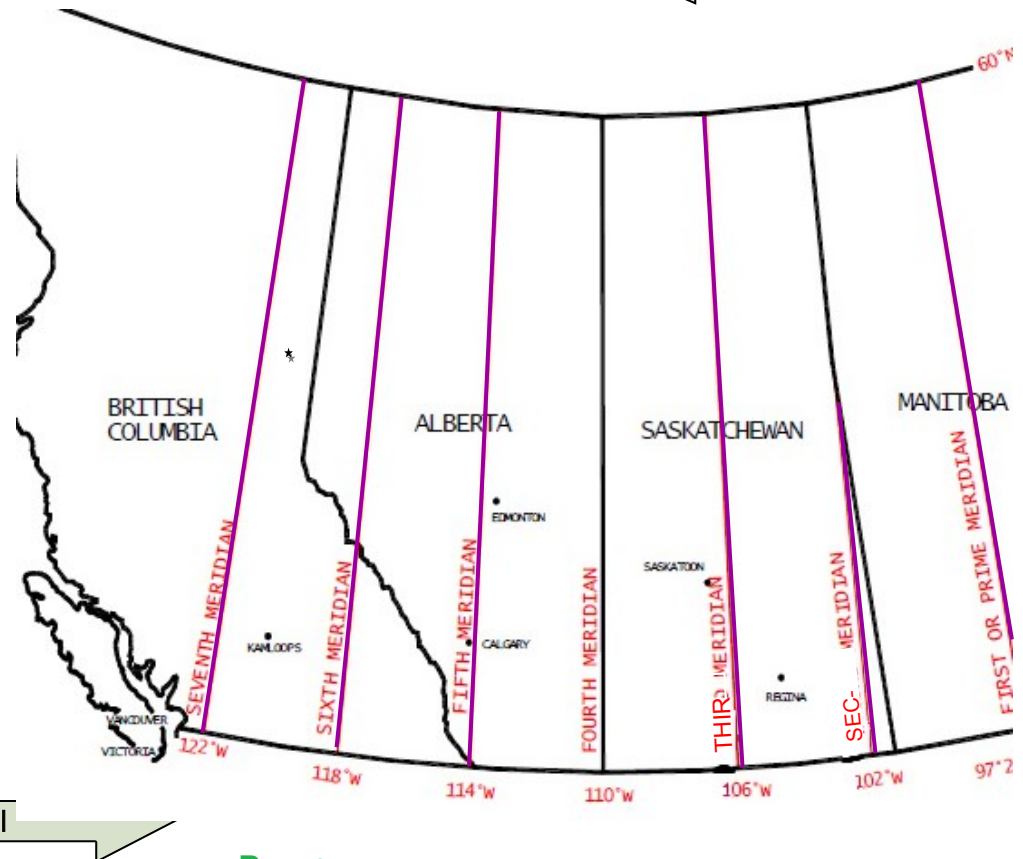
Order of Detail

Legal land descriptions are easier to work with, if we remember that they essentially read the opposite way or order that we read a page. We get the “bigger picture” viewpoint from the right hand side number. As we move to the left, the level of detail increases. The subtitles on these pages are color coded to match the diagram to the right and to assist us in understanding the components of a legal land location and this increasing level of detail from right to left.



Grid System

The Dominion Land system divided land into a grid pattern. The starting point for the grid was the first meridian. From here the basic grid was formed with **township lines** that run east and west and **range lines** that run north and south. Township lines are approximately 6 miles apart and are numbered 1,2,3 and so on north. Township 1 occurs north of the 49th parallel (Canada/US border) and township 127 occurs at the 60th parallel (territory/provincial border). Range lines are approximately 6 miles apart; range 1 is always immediately west of the meridian and continue westward.



Meridians

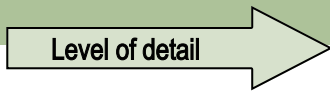
The meridian is noted at the far right in the legal land description at the top of the page, **W6**. Meridians follow the north to south lines of longitude. (see map above). The first or prime meridian occurs at $97^{\circ} 27' 28.4''$ west. It is located just west of Winnipeg and was chosen in 1869 as it marked the western limit of settlement at the time. The second meridian occurs at $102^{\circ}W$. The meridians then occur every 4 degrees at 106° , 110° , 114° , 118° and 122° , marking the third, fourth, fifth, sixth and seventh meridian, respectively. Thus most land in the BC Peace is located west of the sixth meridian or W6.

Ranges

Range lines run north south parallel along meridians. Each range line is about 6 miles (9.6 km) apart from the neighboring range line. The range immediately west of a meridian is Range 1, continuing on as we head west. The range number in the above example is **17**.

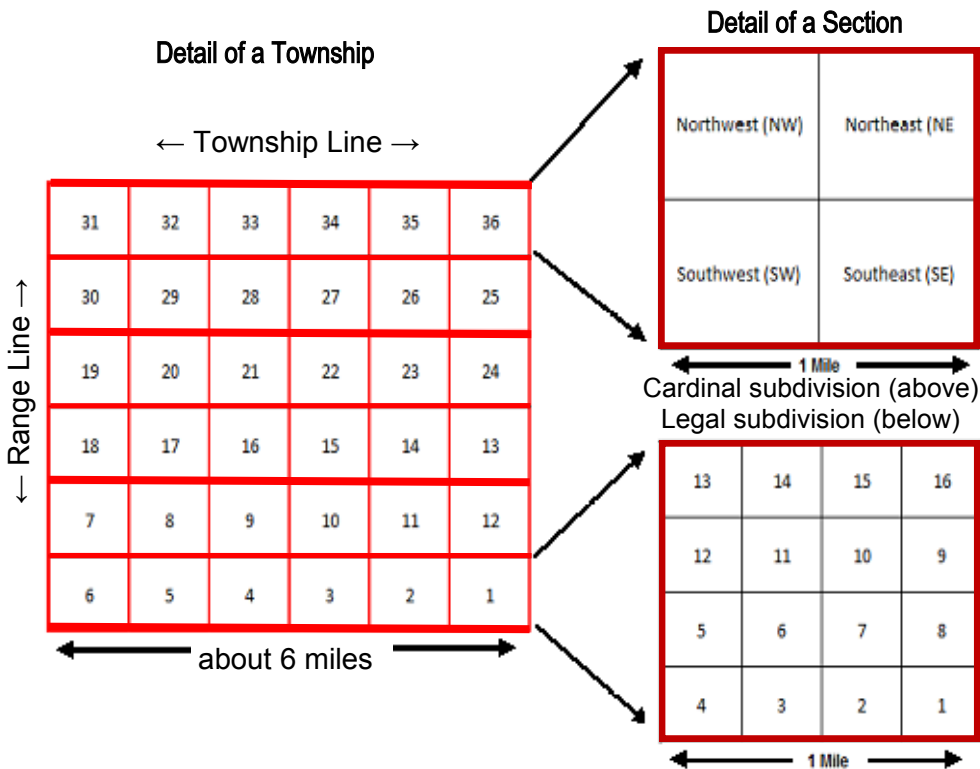
Range is sometimes abbreviated to Rg on maps. Grid maps are available for the western provinces showing the numbering for the ranges in relation to the meridians.

There are road allowances every mile going west. Road allowances are not part of the section of land, which is why townships are slightly larger than 36 square miles. Road allowances in the BC Peace River area are 66 ft.



Townships

The surveying technique of this system allows for the division of meridians into townships (79 in example at top of page 2). A township is approximately a six mile by six mile area between two township lines and two range lines. The first township starts at 49th parallel and goes north. Township lines are spaced about 6.0375 miles apart, which allows three road allowances running east west. The road allowances are 1 rod i.e. 66 ft (20 m) each and occur every 2 miles. Townships are further divided into 36 sections, that are one mile by one mile (see diagram of township below).



Sections

The section in the example is 18. Sections are 640 acres, and measure one mile by one mile. They can either be divided into four quarter sections of 160 acres each or divided using legal subdivisions of 40 acres each.

Quarter Sections or Cardinal Subdivision

When divided into the four quarter sections, the areas are labeled using cardinal directions of northwest, northeast, southwest and southeast. This is more often used for agriculture lands.

Legal Subdivision or LSD

When the section is divided using legal subdivisions, each section is divided into 16 pieces that are 40 acres each. The LSD in the example on page 2 is 13. The numbering starts in the southeast corner, and ends in the northeast. This method of labeling is used in mining, oil and gas.

These two methods can be laid over top of each other. This means the southeast quarter of a section would also be 1, 2, 7 & 8 within it.

Correction Lines

Correction lines are offset range lines. Since meridian lines run north south, they converge at the earth's pole. In order to make the square grid work on a round earth, range lines need to be offset every so often. The first correction line, or jog, occurs 2 townships north of the Canada/US border, approximately 12 miles north of the 49th parallel. The correction lines after that occur every 4 townships going north, or about every 24 miles. The size of the jogs changes, and they change direction.

Baselines

The first baseline occurs at 49° north latitude or 49th parallel (Canada/ US border). After the first baseline, they occur every 24 miles until the 32nd baseline at 60° north.

Corner Mounds

The surveyors placed corner mounds where section lines intersected. There were 4 small pits dug around a central mound with a survey pin or stake. The top was flat so that Roman numerals could be stamped or filed onto them. These survey pins were often stolen or "borrowed" by those not in favor of this concept of opening up the west for settlement.

Witness Mounds

When the actual corner is located in a lake or down a steep slope, a witness mound is placed nearby with description of where the actual corner stake should be.

Sources:

McKercher, R.B. & Bertram Wolfe. 1986. Understanding Western Canada's Dominion Land Survey System. 28 pg.

Obee, Dave. Finding Aid: Prairie Land Records

Royal BC Museum Archives. Surveyors and Surveying. Frank Cyril Swannell.

Rule, Chris. Dominion Land Survey Powerpoint file at: <http://www.websiteservice.ca/powerpoints/dominionls.pdf>

Taylor, W.A. 1975. Crown Lands: A History of Survey Systems. 30 pg.

Websites & Apps:

<https://itunes.apple.com/ca/app/...landtracker-lsd-finder/>

<http://www.oilwellfinder.com/>

www.legallandconverter.com/

<https://www.lsdfinder.com/>

"In 1869, surveyors went to work mapping out the Canadian prairies. Starting just outside of Winnipeg, they slowly worked their way across the land, carving up 178 M ac into 1.1 M quarter sections... then be settled by immigrants arriving from Ontario, Europe, the US & elsewhere." ~Dave Obee

Multiple Lease Site Wells

When there is only one well on a lease, the well's identifier is the same as the lease. When there are multiple wells on site, the first well is the lease location and subsequent wells are designated a letter, usually starting at "A".

Converting GPS to LSD

There are several websites and apps available now to convert between Legal Subdivisions and latitude and longitude coordinates. One example is the LandTracker app that allows you to plug in Legal Subdivisions coordinates and get the latitude and longitude coordinates to input onto a map. If you are already on a site the LandTracker app can convert the coordinate you are at to the Legal Subdivision. For more information about this and other options see side bar on this page.

Land Parcels Outside the Surveyed Area

When land parcels are outside the Dominion Land Survey, you can find a location for them, by extending the survey lines or grid onto the map using a plastic overlay.

Quick Summary

- ◇ BC Peace River Block is located west of 6th Meridian.
- ◇ Range lines running north to south divide the area between the meridians.
- ◇ Townships are made up of 36 sections and have township lines and range lines spaced 6 miles apart.
- ◇ A section = 1 mi x 1 mi or 640 ac
- ◇ A section = 4 quarter sections
- ◇ A quarter section = 160 ac
- ◇ A section = 16 legal subdivisions or LSD and 1 LSD = 40 ac
- ◇ Letters "A" or "B" after a legal subdivision or LSD are used for more than one well site.

A Constant In Changing Times

The original land surveys were done in the early 1900s in the BC Peace River Block. The Dominion Land Survey methods adopted across the prairies were used. Although there have been modifications to methods and principles adapted to make corrections in a few places, the general township and range grid lines are still trusted as accurate.



Land surveyors built a canoe to cross a river.

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Agriculture and Agri-Food Canada, the BC Ministry of Agriculture and the Investment Agriculture Foundation of BC, are pleased to participate in the production of this publication. We are committed to working with our industry partners to address issues of importance to the agriculture and agri-food industry in British Columbia.

Opinions expressed in this report are those of the Peace River Forage Association of BC and not necessarily those of the Investment Agriculture Foundation, the BC Ministry of Agriculture or Agriculture and Agri-Food Canada.