Landslide Report – Case 3
Wallace Creek Expanded

Aug 8, 1891 – Original West Line of T22NR22E
July 29, 1919 – Retrace/Resurvey Said West Line
1980 +/- – Private Resurvey West Line Sec 6
Apr 1982 – USFS Retrace/Resurvey West Line Sec 6

Presentation by Steve Parrish (CFedS)
NDSPLS 41st Annual Conference
February 6, 2020 – Fargo, North Dakota
Introduction

Sudden Shifts

CASE NO. 1  DOMPIER CREEK, Oregon
CASE NO. 2  SLIDE LAKE, Wyoming
CASE NO. 3  WALLACE CREEK, Idaho

Creeping Shifts

CASE NO. 4  COLLINS POINT SLIDE
CASE NO. 5  MANTI SLIDE

Earthquake shifts

CASE NO. 6  ANCHORAGE TOWNSITE
CASE NO. 7  SYLMAR EARTHQUAKE RESURVEY

Author at Point of Beginning Monument beside
county road; Ohio-Pennsylvania Boundary.
Donation Land Claims is the third book that C. Albert White has authored on an aspect of the U.S. Public Land Survey System (PLSS). His first book, A History of the Rectangular Survey System, was published in 1983 and has become the definitive documentation on the development of the PLSS. His second book, Initial Points of the Rectangular Survey System, was published in 1996. The idea for that book developed during the research and writing of the first book as Al wondered how each of the 37 initial points of the PLSS was established and their locations. So, as is indicative of Al’s research and persistent, he proceeded to visit and photograph each of the points, and then wrote a book about them.

This book on Donation Land Claims (DLCs) is more localized in scope and pertains principally to Oregon and Washington, or the former Oregon Territory. Although DLCs are a minor part of the total number of surveys done in these two states, they present different survey problems due to their metes-and-bounds descriptions. In an attempt to assist others with the resurvey of DLCs, the County Surveyors in Western Oregon asked White to compile a document or guide lines on acceptable procedures to use when encountering DLCs. As is characteristic with Mr. White, the guide lines or pamphlet quickly escalated into a manuscript and a book.

There is a wealth of information that exists regarding DLCs and the settlement of the public domain of the Oregon Territory. However, there is little documentation concerning the procedures to use on the resurvey of DLCs. Compounding the situation is that the majority of the DLCs were originally located in the valleys west of the Cascade Range, and surveyors in other parts of the states may never encounter them in their work. White’s book provides the procedures to use for resurveying DLCs and actual examples of DLC surveys.
Al White had a long and distinguished career as a Cadastral Surveyor with the Bureau of Land Management, and it is interesting that when he retired in 1983 he embarked on another career, authoring books on the subject which he practiced and was fascinated by. He started with the General Land Office in 1946 and worked in several western states on GLO and BLM crews. (Travel with him in any western state and he will soon be telling stories of past surveys in that particular part of the state.) After a stint in the U.S. Army and then with a private firm in Colorado Springs, White rejoined the BLM in Oregon in 1958. He spent 12 years supervising field crews and then spent the majority of the remaining years of his career instructing and writing for the cadastral training staff. It was during this period of time that I met Al while I was attending one of the cadastral training sessions at the University of Portland. Since that time we have been in the same office for several years, and I have come to respect his knowledge and the research tenacity exhibited by him when he’s compiling a book or even a report on a survey problem. His admonishment to use common sense, good judgement and extensive research are guideposts for every surveyor to use and follow.

Mike Gardner
Chief, Branch of Geographic Sciences
Oregon State Office, BLM
Memorandum
January 20, 1998

To: Wayne M. Gardner

From: C. Albert White

Subject: Landslides and Earthquake Displacement of Land Survey Monuments and Land Lines

You have requested that I make a study of and prepare a report on what a cadastral surveyor should be aware of when confronted with a situation where the land survey lines and/or monuments have been displaced by landslides or earthquakes. After several months of research and extensive inquiry into the matter, the following is my report of what I found concerning these types of situations.

A 6/30/2014 Google Earth view of a 1930s vintage landslide that originated as a result of an excess flow of water over the bank of a canal built to serve a "placer diggings" operation & irrigation to the northeast.
Land Surveys and Property Rights:

It has been said that land surveying is the second oldest profession. Although meant as a humorous remark, that statement is probably near to the truth. It is also known that prehistoric peoples marked in some way, the boundaries of the land they claimed for themselves, their tribe or clan. Most predatory animals, such as the cat species, mark their territorial boundaries in some manner. None of these set exact monuments of any sort but they claim the land for themselves.

It isn't really known when the human animal began to establish more precise boundaries of the land being claimed, by establishing natural or artificial monuments to mark boundaries. Certainly this activity occurred more than 5,000 years ago. There are references in the Bible that indicate the importance of established monuments. "Cursed be he that removeth his neighbors landmark. And all the people shall say Amen" (Deuteronomy 27:17), and "Remove not the old landmark' and enter not into the fields of the fatherless" (Proverbs 23:10). Thus we know that monuments have been established on the surface of the earth to mark the boundaries of the property claimed by individuals and/or "civilized" governments for a long time.

The basic law on land surveys, monuments, and land survey lines (bounds) are rooted in the English Common Law imported into North America by the early colonists. Usually, a grant of a large described land area would be made by the King of England to an individual or Chartered Colony. Smaller land areas would be surveyed on the ground, the lines marked by blazing on trees, and monuments set on the surface to mark the corners of the surveyed lands being conveyed by deed or patent to individual landowners. The deeds were usually recorded. One practice was that neighboring landowners had to "walk the bounds" once each year so that the surveyed lines would be well known and to rehabilitate the monuments. The original monuments marking the corners were often a wooden post or a tree (corner tree) marked in place.
If I may offer a bit of "sage advice"

It should be remembered that professional land surveyors, including (but not limited to) the Cadastral Surveyors employed by the Bureau of Land Management, are not clothed with judicial authority. While they do execute many original surveys of the Federal public domain, their primary function in the context of this report is in executing dependent resurveys of the original surveys performed many years ago. Once those original surveys were executed and approved, and lands patented based on them, they become fixed in position and unchangeable in accordance with Statute and Case Law. The primary function of the land surveyor, when executing dependent resurveys, is that of a professional gatherer of evidence, and presenting that evidence in a clear and understandable manner. The plat(s) and field notes should not be interpretable by only another surveyor familiar with cryptic jargon that non-surveyors do not understand. The research into the past surveys, monumentation, records, etc., must be thoroughly complete. The search for evidences of past surveys and monuments on the ground must also be well founded and complete. While so-called "gut feelings" and "instinct" may play a role in recovering evidence, they are not evidence in and of themselves. Once the surveyor has completed all of his research and retracements, gathered all of evidence, executed his dependent resurvey, drawn the plat and written the field notes, he then can testify as an expert witness as to what he has found and voice his expert opinion on where particular survey lines are located on the ground. And after all that, some court may completely overrule him in a judicial proceeding.

Frustrating?? Yes it is, but that's the way the judicial system works in this country. The very best protection the surveyor has is to be absolutely thorough in his investigations, not do them with a preconceived goal or conclusion that he wants to prove. Keep an open mind and let the chips fall where they may. In a word, be unbiased. That is my best advice based on my 50 plus years of experience. Don't be a victim of the question: Why is it--there is never time to do it right, but always time to do it over??
T. 22 N., R. 22 E., Boise Meridian was surveyed by Samuel G. Rhoades in 1891, as shown on the plat approved August 8, 1892. A portion of the Rhoades plat is shown in Exhibit A. The plat shows "placer diggins" in the northwest quarter of section 6.

The west boundary of T. 22 N., R. 22 E. was retraced by B.M. Pellum in 1919, under Group No. 103, Idaho, and T. 22 N., R. 21 E was surveyed by Pellum and H.G. Bardsley at that time. A portion of the Pellum-Bardsley plat, approved November 17, 1920, is shown in Exhibit B. Pellum and Bardsley found the east boundary to be out of limits for distance. They resurveyed the north five miles of the east boundary, holding the Rhoades corners for distance and alignment, setting brass capped iron post monuments at each corner, marked for T. 22 N., R. 22 E., only. They set new corners at 40.00 and 80.00 intervals marked for T. 22 N., R. 21 E. They surveyed the first meridional line in T. 22 N., R. 21 E., parallel to a mean bearing of the east boundary and surveyed the east-west section lines random and true, placing the excess distances against the east boundary, as shown on Exhibit B. Thus, there are "double corners" along the east boundary of the township.
CASE NO. 3
EXHIBIT A
PORTION OF RHOADES PLAT, T. 22 N., R. 22 E.
1892
CASE NO. 3
EXHIBIT B
PORTION OF PELLUM-BARDSLEY PLAT
T. 22 N., R. 21 E., 1920
CASE NO. 3
EXHIBIT C
PORTION OF BIRD CR. AND SALMON QUAD.
1966
The area was mapped by the U.S. Geological Survey as shown on the Bird Creek and Salmon quadrangle maps published in 1966, 1/24,000 scale (7 1/2 minute series). A portion of those two quadrangles is shown in Exhibit C.

The north, south, and west boundaries of section 7, T. 22 N., R. 22 E., were resurveyed and a tract 37 was surveyed in section 7, in 1970, under Group No. 446, Idaho, as shown on the plat accepted March 8, 1973; Exhibit D.

All of section 1, T. 22 N., R. 21 E., is public lands within and administered by the Salmon National Forest. All of section 6, T. 22 N., R. 22 E., is patented land in private ownership.

In 1982, the Salmon National Forest was in the process of checking and posting the Forest Boundary(s). It was discovered that a relatively new fence had been build on a straight line from the corner of sections 1 and 12, T. 22 N., R. 21 E., to the corner of Tps. 22 and 23 N., Rs. 21 and 22 E. A new log home had been build a short distance south of the location for the 1/4 corner of section 6, only; rather close to the fence. The brass capped monuments for the 1/4 corner of section 6 and 1/4 corner of section 1 were found about 165 ft. east of the fence, both intact and nearly the correct distance apart.
Inquiry was made of the owner of the log home about the situation. The owners father was a long time resident. He stated that a canal (ditch) has been build in section 1, bringing water out of Wallace Creek and around the hillside to the placer mining operations in section 6. About the year 1930, the ditch became obstructed. The overflow out of the ditch breached the ditch, saturated the hillside, and caused a sudden slump of the clay soil. The slide out was not extensive, only a hundred acres or so, but as the soil flowed eastward, it carried the two 1/4 section posts with it, intact. Therefore, the landowner knew the monuments were displaced. The old slide was still evident 50 years later, as evidenced by the large displaced boulders, unevenness of the landscape, and the scarp at the upper edge of the slide.

The landowner wanted to build a home, so he hired a private surveyor to replace the 1/4 corners and/or mark the west boundary of section 6. Evidently, the private surveyor did not do the proper research. He marked a straight line between section corners and the fence was built, but the 1/4 corners were not replaced or monumented.

The Forest Service surveyor developed the above recited information. He dependently resurveyed the line between sections 1 and 6, as shown on a portion of his record of survey plat, recorded in Lemhi County on April 28, 1983. A portion of that plat is shown in Exhibit E. As the plat indicates: The two 1/4 corners were restored by the irregular boundary method based on the Pellum and Bardsley plat, Exhibit B. The bearings and distances remained remarkably close to the 1919 record. The 1919 brass capped posts were removed from their displaced positions and utilized to remonument the corners in the correct location.

After the range line was properly restored, it was found that the new log home was only 15 feet east of the range line, and considerable amounts of landscaping were on Forest Service land.
CASE NO. 3
EXHIBIT E
PORTION OF FOREST SERVICE PLAT
RECORDED
APRIL 28, 1983
COMMENTS

This case is very simple, but does illustrate the need to pay attention when something is abnormal. The private surveyor was almost certainly derelict in not restoring the boundary based on the 1919 resurvey. That record was readily available from Lemhi County or the Salmon National Forest, both located only seven miles south, in Salmon, Idaho.

The 1973 B.L.M. plat of the survey in section 7 is technically in error. The plat correctly shows that the boundaries of section 6 were surveyed by Rhoades. But - the west boundary of section 6 should have shown the 1919 record by Pellum and Bardsley; not the 1891 record. But, the private surveyor should not have been mislead by that error because the date on the brass caps was 1919, therefore, that resurvey should have been obvious.
The accompanying map of the 5th Standard Parallel North between Townships 21 & 22 North in Range 21 East along the South boundary of Sections 5 & 6, the 6th Standard Parallel North between Townships 22 & 23 North through Range 22 East of the 5th Meridian East, between Ranges 22 & 23 East, through Townships 22 & 23 North, the South Meridian, North Boundaries of Townships 23 North, Range 23 East, the West boundary of Township 23 North, Range 22 East, the North East, South, and West boundaries of Township 23 North, Range 23 East, the West boundary of Township 22 North, Range 23 East, between Sections 5 & 6, 32 & 33, and the re-survey of the North boundary of Township 20 North, Range 22 East through the eastern 4 sections, the East boundary of Township 21 North, Range 22 East, between Sections 1 & 6 and the West boundary of Township 22 North, Range 22 East, as surveyed by Samuel C. Rhoades, U.S. Deputy Surveyor, under his Contract No. 129, dated April 17, 1892, is strictly conformable to the field notes of the survey thereon on file in this Office, which have been examined and approved.

T, S, Surveyor General's Office, Boise City, Idaho, Aug 8, 1892.

[Signature]
U.S. Surveyor General for Idaho
FIELD NOTES
OF THE SURVEY OF
The Exterior Boundaries of
Townships No. 22 & 23 North,
Range No. 22 East
OF THE BOISE MERIDIAN,
IDAHO,
AS SURVEYED BY
Samuel C. Blacker
U. S. Deputy Surveyor.

Under his Contract No. 129
Dated April 17th, 1891
Survey Commenced August 7th, 1891
Survey Completed August 18th, 1891

Received at Sur. Gen’s Office.
Examined Feb. 24th, 1892

INDEX DIAGRAM.
Township 22 North, Range 22 East. Boise Meridian.

This Index must be used for the subdivision lines of a Fractional township, but may be used for a full township.
West Boundary of Tract 2.2

Chains
25.00 Ravine, 100 ft. below the ridge, course E. and ascend.
35.30 Ridge, 200 ft. above the ravine, trending E. 7% W. and descend.
40.00 Set a slate stone 18" x 10" x 8" in. 12" ris in the ground for 4 ft. sec. con. marked 4 ft. on side, and raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside.
42.00 Ravine 50 ft. below the ridge, course E. and ascend.
47.00 Ridge, 150 ft. above the ravine, trending E. 7% W. and descend.
56.50 Ravine, 300 ft. below the ridge, course E. and ascend rock plat.
62.50 Ridge, 160 ft. above the ravine, trending E. 7% W. and descend.
65.00 Ravine, 100 ft. below the ridge, course E. and ascend.
67.50 Ridge, 100 ft. above the ravine, trending E. 7% W. and descend.
80.00 Set a slate stone 24" x 12" x 7" in. 18" ris in the ground, for rev. to see 1 1/2 ft. 12" marked with 1 match.

Chains on N. and 5 matches on S. edges. Raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside. On top of ridge 2 1/2 ft. above the ravine. Hard mountain soil. Soil, gravelly loam, rocks 3% rate. No timber.

North to Sec. 146. 24" 17' 11" W.

Local attraction at this point. Over rolling ground, on slope of mountain. Descend the ridge 100 ft. below the top, and ascend.
56.00 Ridge, 75 ft. above the foot, trending E. 7% W. and descend.
28.00 Descend steep knolki into gulch.
34.50 Wallac creek. 15 ft. across, course E. 35.00 Beav. hollow, dense reeds, and descend.
40.00 Set a slate stone 18" x 8" x 4" in. 12" ris in the ground, for 4 ft. sec. con. marked 4 ft. on side, and raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside. One oil.
80.00 Set a slate stone 24 x 12 x 2 in. in the ground for cor to sec. 16, Y+12, marked with 1 match.

Chairs on N. and 5 matches on E. edges.
Raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside. On top of ridge 25 ft. above the ravine.

North bet. Sec. 1+6.

40.00 Set a slate stone 18 x 8 x 4 in. in the ground for 1 1/4 sec. cor. marked 1/4 on W. side and raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside. On a ridge.
West Boundary of Sec 23, R. 32 E.

50.00 Chains 50 ft above the creek, and ascend
51.00 Ridge 250 ft above the creek, trending E. 71 N.
52.00 Plow digging 12 ft thirsty
53.00 Waggon road to Moore Creek, course N. W. E. and descend
54.00 Ravine 200 ft below the ridge, course E. and ascend
54.50 Ridge 125 ft above the ravine, trending E. 71 N. and descend
55.00 Ravine, 80 ft below the ridge, course E. and ascend
56.70 Ridge 50 ft above the ravine, trending E. 71 N. and descend

86.00 Set a plate stone, 18 in. 10 x 8 in., 12 ins. in the ground for cor to tups 22.33 N. R. 21 + 22 E. marked with a nutch on the S. E. Wedges, and raised a mound of stone 1½ ft. high, 2 ft. base alongside, 20 ft. below the ridge. Land mountainous, 79.00 chs. soil gravelly lam 3rd rate. Timber, dense undergrowth of aspen 2.60 chs.

August 8, 1891.

General Description

This line runs through a mountainous district. Tups 22 North, Range 32 East being mountainous, rough and broken, while Tups 22 North, Range 32 East is mountainous but has cultivable land along the Salmon River which lies in the first tier of sections East of this line. The grazing is much better the East than West of this line, though many good sections furnish good grazing for stock in Tups 22 North, Range 21 East.

There are placer diggings in Sec 6, Tups 22, R. 22 E. and parties are now constructing ditches on the same.

Samuel G. Rhodes
U. S. Deputy Surveyor.
80.00 Set 3 slate stone 18 x 10 x 8 ins, 12 ins in the ground for cor to lots 22 + 23 N R 24 + 23 E marked with 6 notches on S E + W edges, and raised a mound of stone 1 1/2 ft. high, 2 ft. base alongside, 2 0 ft. below the ridge.
Land mountainous 79 chs
Soil, gravelly loam 3rd rate
Timber, dense undergrowth of aspen
2 50 chs.

August 8, 1891.

There are placer diggings in Sec 6 T 32 N R 23 E. and parties are now constructing ditches on the same.

Samuel T. Rhodes
U.S. Deputy Surveyor.
FIELD NOTES
OF THE SURVEY OF THE
REPLACEMENT AND RESURVEY OF WEST BOUNDARY OF T. 22 N., R. 22 E.,
REPLACEMENT OF 5TH STANDARD PARALLEL, NORTH THROUGH PART OF R. 23 E.,
SURVEY OF 5TH STANDARD PARALLEL, NORTH THROUGH PART OF R. 22 N., AND
WEST BOUNDARY OF T. 22 N., R. 21 E.,
REPLACEMENT AND RESURVEY OF PART OF SOUTH BOUNDARY OF T. 23 N., R. 21 E.,
SURVEY OF PART OF NORTH BOUNDARY OF T. 22 N., R. 22 E., AND
SUBDIVISION OF T. 22 N., R. 21 E.,

Of the Boise Meridian,
In the State of Idaho

EXECUTED BY
L. H. Bardsey, U. S. Cadastre Engineer, and
B. M. Pollum, U. S. Surveyor.

Issued by the United States Surveyor General to govern surveys included in
Group No. 105, which were approved by the Commissioner of the General Land
Office, June 4, 1919, and supplemental assignment instructions dated Aug. 9, 1919, issued by the Assistant Supervisor of Surveys, for
District No. 7, Idaho.

Survey commenced July 15, 1919.
Survey completed Aug. 5, 1919.

INDEX DIAGRAM.
Township 22 North, Range 21 East.

Lines dated in green surveyed by H. G. Bardsey.

Lines dated in red surveyed by B. M. Pollum.

Survey completed Aug. 5, 1919.
Survey commenced July 13, 1919, and executed with Buff and Buff brass solar transit Nov. 10, 1927, and 1928, with Smith solar attachment, property of the General Land Office; unless otherwise specified, all azimuth determinations are accomplished with the solar attachment.

The instruments were examined and tested by the Assistant Supervisor of Surveys and approved for this work conditional upon satisfactory field tests.

July 13, 1919: At camp, near the SE. cor. of sec. 27, T. 22 N., R. 21 E., Boise Mer., Idaho, in latitude 43° 15' N., longitude 116° 51' W., at Ch 154 a. m., l. a. t., I observe Polaris at eastern elongation, making four observations, two each with the telescope in direct and reverse positions, and mark the mean point in the line thus determined, on a peg driven firmly in the ground, 5 chs. North.

Azimuth of Polaris at eastern elongation = 1° 56'.

July 13, 1919: At 7h 30m a.m., I lay off the azimuth of Polaris, 1° 56' to the West, and mark the meridian thus determined by a tack in a peg driven in the ground, 5 chs. North.

At the same station, at Ch 94 a. m., app. t., I set off 45° 15' on the lat. area, 21° 57' W. on the decl. area of both instruments, and determine meridians with the solars, which I find to agree with the true meridian.

At app. noon, with the lat. area on the transit unchanged, I observe the sun on the meridian; the resulting readings of decl. area on the transit in 21° 57' W.; which agrees with the computed declination of the sun.

At 4h on p.m., app. t., with the lat. area unchanged, I set off 21° 57' W., on the decl. area of both instruments; and determine meridians with the solars, which I find to agree with the true meridian.

An all of the solar observations during the usual hours of solar work came within 1° 30' of the true meridian, I consider that the adjustments of the instruments are satisfactory.

Latitude and repeated meridian observations were taken daily, weather permitting, and the instruments were kept in adjustment throughout the survey.

Unless otherwise specified, all measurements are made with the Lufkin 5 chain steel tapes, found correct by comparison with a Lufkin standard steel tape. The measurements are made on the slope, the vertical angle determined, and the slope measurements properly reduced to the true horizontal distances.
N., longitude 113° 51½' W., at 0h 16m a. m., l. m. t.,
I observe Polaris at eastern elongation, making four
observations, two each with the telescope in direct
and reverse positions; and mark the mean point in the
line thus determined, on a peg driven firmly in the
ground, 5 chs. North.

At 4h 0m p. m., app. t., with the lat. arcs unchanged,
I set off 21° 54' N., on the decl. arcs of both
instruments; and determine meridians with the solars,
which I find to agree with the true meridian.

As all of the solar observations during the usual hours
of solar work come within 1° 30' of the true meridian,
I consider that the adjustments of the instruments
are satisfactory.
Retirement of W. boundary of T. 22 N., R. 22 W.

Chains.

From the standard cor. of T. 24 N., R. 23 W., 22 W.

39.95 Fall 11 ins. W. of the 1/2 sec. cor.

90.00 Fall 21 ins. W. of the cor. of secs. 29, 30, 31 and 32.

The S. half of this line is N. 0° 57' W., 39.95 chs.,

and the N. half is N. 0° 31' W., 40.00 chs.

From the sec. cor.

North, bet. secs. 25 and 26.

40.00 Fall 19 ins. W. of the 1/2 sec. cor.

79.95 Fall 23 ins. W. of the cor. of secs. 19, 20, 21 and 22.

The S. half of this line is N. 0° 57' W., 39.95 chs.,

and the N. half is N. 0° 31' W., 40.00 chs.

From the sec. cor.

North, bet. secs. 19 and 20.

39.90 Fall 16 ins. W. of the 1/2 sec. cor.

79.35 Fall 21 ins. W. of the cor. of secs. 15, 16, 17 and 18.

The S. half of this line is N. 0° 57' W., 39.95 chs.,

and the N. half is N. 0° 31' W., 40.00 chs.

From the sec. cor.

North, bet. secs. 13 and 14.

39.75 Fall 13 ins. W. of the 1/2 sec. cor.

79.47 Fall 19 ins. W. of the cor. of secs. 7, 8, 9 and 10.

The S. half of this line is N. 0° 57' W., 39.75 chs.,

and the N. half is N. 0° 31' W., 40.00 chs.

From the sec. cor.

North, bet. secs. 7 and 8.

39.82 Fall 17 ins. W. of the 1/2 sec. cor.

79.53 Fall 19 ins. W. of the cor. of secs. 1, 6, 7 and 8.

The S. half of this line is N. 0° 57' W., 39.82 chs.,

and the N. half is N. 0° 31' W., 40.00 chs.

From the sec. cor.

North, bet. secs. 1 and 6.

The standard cor. of T. 22 N., R. 21 W., and 22 W., is a cobblestone, 0 x 6 x 10 ins. above ground, firmly set, and witnessed as described by the Surveyor General; identical with cor. no. 1, s. 8 & e. no. 117. Alongside of stone,

Set an iron post, 5 ft. long, 3 in. diam. 24 ins. in the ground, with brass cap amid. 1915.

2 1/2 ft.

X 2 1/2 ft. 2 1/2 ft.

1915.

Theere

N. 0° 17' W., on E. bdy. of sec. 31.

Descend 75 ft. over broken E. slope, through scattering undergrowth.

7.60 Jessie Creek, 4 ins. wide, course NE.

29.03 Cor. No. 4 of R. 21 N., S. no. 117, which is a limestone, 10 x 4 x 6 ins. above ground, firmly set, and witnessed as described by the Surveyor General; hence

West, 2 ins. dist.

39.88 The 1/2 cor. established for secs. 31 and 36, which is a slate stone, 0 x 5 x 6 ins. above ground, firmly set, and witnessed as described by the Surveyor General.

Alongside of stone,

Set an iron post, 5 ft. long, 1 in. diam. 26 ins. in the ground, with brass cap amid. 1919.

2 1/2 ft.

X 2 1/2 ft. 2 1/2 ft.

1919.
North, bet. secs. 31 and 36.

30.88 Fall 17 lks. W. of the ¼ sec. cor.

80.00 Fall 21 lks. W. of the cor. of secs. 25, 30, 31 and 36.
The S. half of this line is N. 0° 15' E., 39.88 chs.,
and the N. half is N. 0° 3' E., 40.12 chs.

79.83 Fall 19 lks. W. of the cor. of secs. 1, 6, 7 and 12.
The S. half of this line is N. 0° 15' W., 39.82 chs.,
and the N. half is N. 0° 31' E., 40.01 chs.

40.05 Fall 27 lks. W. of the ¼ sec. cor.

79.90 Fall 10 lks. W. of the cor. of Tps. 22 and 23 N., Rs.
21 and 22 E.
The S. half of this line is N. 0° 23' E., 40.05 chs.,
and the N. half is N. 0° 15' W., 39.85 chs.
Alongside of stone,
set an iron post, 3 ft. long, 2 in. diam., 24 in. in
the ground, with brass cap and.

The cor. established for sect. 29, 30, 31 and 32, which
is a limestone, 3 x 3 x 3 in. above ground, firmly
set, tied, and witnessed as described by the surveyor
general. Identical with cor. 1 No. 6.

Alongside of stone,
set an iron post, 3 ft. long, 2 in. diam., 24 in. in
the ground, with brass cap and.

T 22 N.
R 21 E.
S 23 x 30
S 37-8 31
1919

Land- rolling.
Soil- gravely and rocky; 2nd and 3rd rate.
Timber- none.

Undergrowth- sage.

RESURVEY OF PART OF W. BDY. OF T. 22 N., R. 22 E.

5 \( \frac{1}{2} \) N. 0° 30’ W., on W. bdy. of sect. 32.

Ascend over broken SE. slope, through scattering
undergrowth.

5:10 Road, bears NE. and SW.
29:30 Moore’s Creek, 7 ft. wide, course E.
49:00 4 ft. above sect. cor.

6:45 Set an iron post, 3 ft. long, 2 in. diam., 24 in. in
the ground, for cor. of sect. 28 and 29, with brass
cap and.

Alongside of stone,
set an iron post, 3 ft. long, 2 in. diam., 24 in. in
the ground, with brass cap and.

Alongside of stone,
set an iron post, 3 ft. long, 2 in. diam., 24 in. in
the ground, with brass cap and.
The cor. established for secs. 19, 24, 25 and 30, which is a limestone, 10 x 8 x 12 ins. above ground, firmly set, mkd. and witnessed as described by the surveyor general.

Hereafter this cor. will refer to secs. 19 and 30 only.

Obliterate old mound and raise a mound of stone, 2 ft. base, 1½ ft. high, E. of cor.

Alongside of stone,

Set an iron post, 3 ft. long, 2 ins. diam., 2½ ins. in the ground, with brass cap mkd.

<table>
<thead>
<tr>
<th>T 22 N</th>
</tr>
</thead>
<tbody>
<tr>
<td>S 19</td>
</tr>
<tr>
<td>S 30</td>
</tr>
<tr>
<td>R 22 E</td>
</tr>
<tr>
<td>1919</td>
</tr>
</tbody>
</table>
Alongside of stone,

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, with brass cap cap.

\[ \begin{array}{c}
\text{Date} \\
\text{1919} \\
\end{array} \]

Alongside of stone,

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, for cor. of sec. 24, with brass cap.

\[ \begin{array}{c}
\text{Date} \\
\text{1919} \\
\end{array} \]

Alongside of stone,

Set an iron post, 3 ft. long, 1 in. diam., 26 ins. in the ground, with brass cap.

\[ \begin{array}{c}
\text{Date} \\
\text{1919} \\
\end{array} \]

Dry bed of Timser Creek, course SE.
Resurvey of part of N.E. 1/4 of T. 32 N., R. 22 E.

Chains.

1st 15', on N. 90° 30' E., 1919.

Descend over broken NW. slope.

1.97 Set an iron post, 3 ft. long, 2 in. diam., in mound of stone, for 1/2 cor. of sec. 13, with brass cap and lid.

2 x 13
1919.

Raise a mound of stone, 2 ft. base, 1/2 ft. high, W. of cor.

6.27 Road, bears NW. and NE.

37.63 Creek, 1 ft. wide, course SE., 260 below 1/2 sec. corner, 100 ft. over NE. slope.

36.57 Spar, alpaca NE.; descend 20 ft. over NE. slope.

39.93 The cor. established for secs. 7, 12, 13 and 15, which is a limestone, 10 x 5 x 5 in. above ground, firmly set, and witnessed as described by the surveyor general. Hence a column line hence his direction.

Hereafter this cor. will refer to sect. 7, 12, 13, 14.

9.97 Old cor., establish 1/2 cor. of stone, 1 ft. base, 2 ft. high, W. of cor.

Alongside of stone.

Set an iron post, 3 ft. long, 1 in. diam., 24 in. in the ground, with brass cap and lid.

Land- mountainous.

Soil- gravelly and rocky; 2nd and 3rd rate.

Timber- none.

Undergrowth- bags.

Resurvey of part of N.E. 1/4 of T. 32 N., R. 22 E.

Chains.

N. 0° 15' W., on N. 90° 30' E. of sec. 7.

Descend over broken NW. slope, through scattering undergrowth.

1.97 Set an iron post, 3 ft. long, 2 in. diam., 24 in. in the ground, for 1/2 cor. of sec. 12, with brass cap and lid.

2 x 13
1919.

Raise a mound of stone, 2 ft. base, 1/2 ft. high, W. of cor.

59.93 60 ft. below sec. cor.

The cor. established for secs. 7 and 12, which is a limestone, 10 x 5 x 5 in. above ground, firmly set, and witnessed as described by the surveyor general.

Hereafter this cor. will refer to sect. 7 only.

9.97 Old cor. of stone, 1 ft. base, 2 ft. high, W. of cor.

Alongside of stone.

Set an iron post, 3 ft. long, 1 in. diam., 24 in. in the ground, with brass cap and lid.

2 x 7
1919.

Thence N. 60° 31' W.

Descend over broken NW. slope.

1.97 Set an iron post, 3 ft. long, 1 in. diam., 24 in. in the ground, for 1/2 cor. of sec. 12, with brass cap and lid.

2 x 12
1919.

Raise a mound of stone, 2 ft. base, 1/2 ft. high, W. of cor.
40.01 25 ft. below c.c., cor.
The cor. established for secs. 1, 6, 7, and 13, which is
a sandstone, 10 x 3 x 13 ins. above ground, firmly set
and, witness as described by the surveyor

gerzal.
Hereafter this cor. will refer to sec. 6 only.
Obliterate old mound and raise a mound of stone, 2 ft.
base, 15 ft. high, of cor.
Alongside of stone,
Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in
the ground, with brass cap add.

\[ \frac{1}{2} S 6 \]
1019

W. 0° 32' E., on N. bdy. of sec. 6.

Ascend 255 ft. over NE. slope, through scattering
undergrowth.

1.00 Set an iron post, 3 ft. long, 2 ins. diam., 24 ins. in
the ground, for cor. of secs. 1 and 12, with brass

\[ \frac{1}{2} S 6 \]
1919

Wallace Creek, 6 ins. wide, course S3E.

Ascend 60 ft. over SE. slope.

40.06 The cor. established for secs. 1 and 6, which is a
limestone, 6 x 3 x 10 ins. above ground, firmly set,
and, witnessed as described by the surveyor general.
Hereafter, this cor. will refer to sec. 6 only.
Obliterate old mound and raise a mound of stone, 2 ft.
base, 15 ft. high, of cor.
Alongside of stone,
Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in
the ground, with brass cap add.

\[ \frac{1}{2} S 6 \]
1019

Thence N. 60° 16' W.

Ascend 225 ft. over NE. slope.

1.01 Set an iron post, 3 ft. long, 1 in. diam., 24 ins. in
the ground, for cor. or sec. 1, with brass cap add.

\[ \frac{1}{2} S 6 \]
1019

Raise a mound of stone, 2 ft. base, 15 ft. high, W. of

cor.

6.50 Spur, slopes SE.; descend over broken NE. slope.

10750 Road, bears E. and W.

39.85 205 ft. below spur.
The cor. established for Tps. 22 and 23, Rs. 20 and
22 E., which is a granite stone, 6 x 6 x 8 ins. above

\[ \frac{1}{2} S 31 \]
1919

Land—mountainous.
Soil—gravelly and rocky; 2nd and 3rd rates.
Timber—none.

Undergrowth—sage.