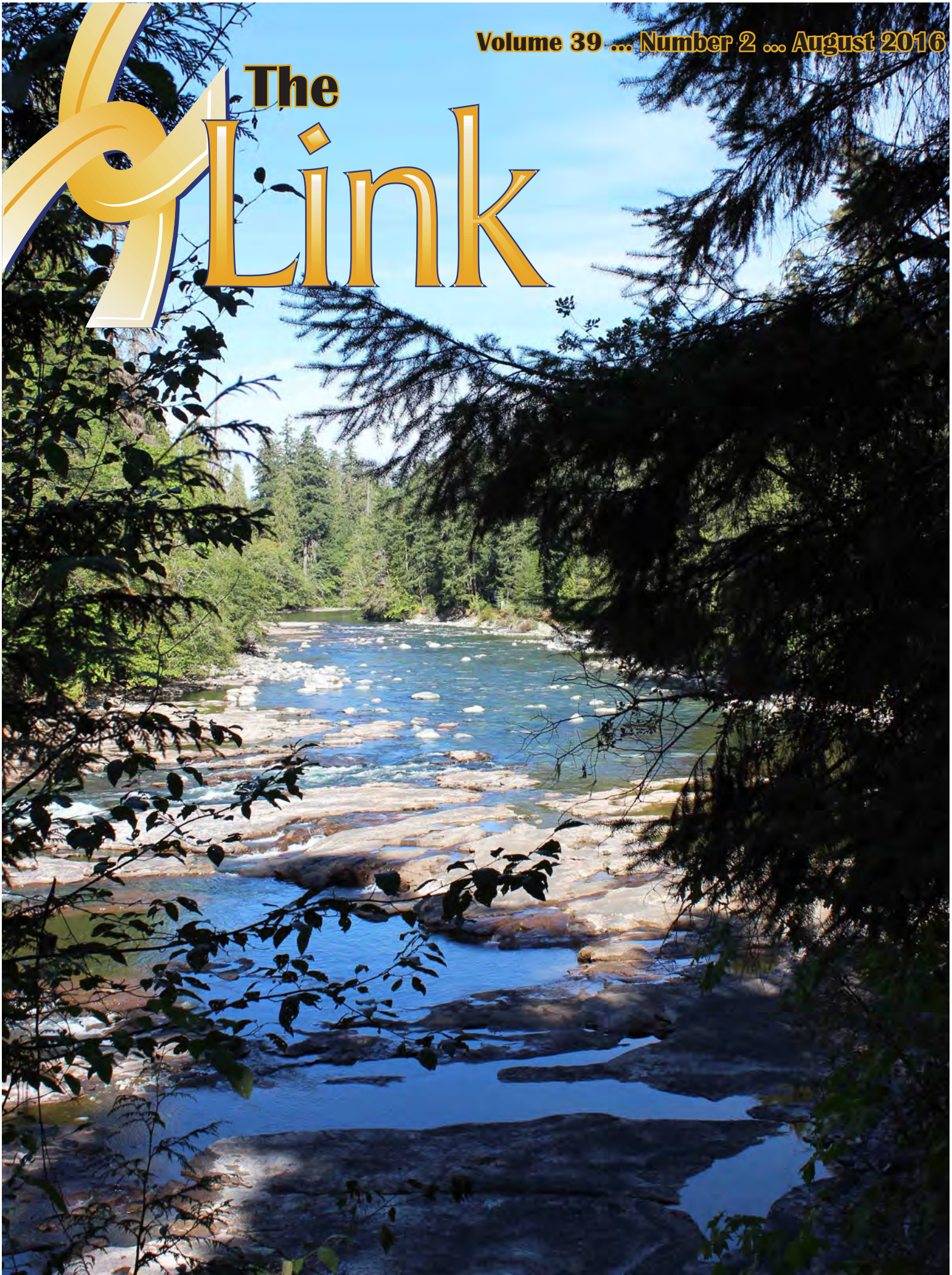
Volume 39 ... Number 2 ... August 2016

The Link



harrington
industries ltd.

QUALITY SURVEY MARKERS
and MONUMENTATION

CELEBRATING
60 YEARS OF DEDICATED SERVICE
& SUPPORT TO THE
LAND SURVEYORS OF BRITISH COLUMBIA

IF YOU NEED TO MAKE A MARK
WE HAVE THE MARKER

VIEW OUR PRODUCTS ONLINE
www.harringtonindustries.com

Phone 604-702-0071
Toll Free 1- 877- 888- 0071
Fax 604-702-0079

Editorial Group

The 'Link' is produced by the Office of the Association of British Columbia Land Surveyors for the enjoyment of members, advertisers and subscribers.

The 'Link' was established in 1977 as an independent forum for the distribution of informed comments on surveying and for the exchange of ideas among surveyors, students and any interested parties.

Opinions expressed by individual writers are not necessarily endorsed by the Editorial Group or by the Association.

The 'Link' is distributed worldwide to all British Columbia Land Surveyors, registered students, authors of record, advertisers and subscribers.

The 'Link' is also exchanged with sister associations across Canada, the United States and Australia.

Contributions to the 'Link' must be submitted no later than March 15th, July 15th and November 15th. Submissions may be by means of a computer disk, legible typewritten manuscript, or may be forwarded using e-mail (text only format for articles and as an attachment for graphics). If possible, avoid sending the article in the PDF format. Colour graphics should have a resolution of 300 DPI.

Publication takes place in the months of April, August and December.

For additional information or submissions, please contact The Association office:

301-2400 Bevan Avenue, Sidney, BC V8L 1W1
Phone: (250) 655-7222 .. Fax: (250) 655-7223
E-Mail: office@abcls.ca
Editor ... Dave Morton (dl.morton@shaw.ca)

Advertising
Please contact Denise Brethour
(dbrethour@abcls.ca) regarding rates

PUBLICATIONS MAIL AGREEMENT NO. 41027533
RETURN UNDELIVERABLE CANADIAN MAIL
TO ASSOCIATION OF BRITISH COLUMBIA LAND SURVEYORS
301-2400 BEVAN AVENUE, SIDNEY, BC V8L 1W1
E-MAIL: office@abcls.ca

Front Cover ... the photo of Stamp River was provided by Denise Brethour.

Association Web Site
http://www.abcls.ca/

Contents

Editor's Effort

Windows 10 Revisited

By Dave Morton, B.Sc., BCLS (Retired)

The time allotted by Microsoft for a free upgrade from Windows 7 or Windows 8 (and Windows 8.1) to Windows 10 has passed … unless rumours of an extension of the free upgrade is correct. However, regardless of the circumstances, there are still a few options with regard to Windows 10 that may be of interest.

For example, there is a procedure which allows the transfer of the Windows 8.1 and 10 operating systems which have been installed on an older PC to a later model. Microsoft offers 'ISO' media installation files for Windows 10 which can be downloaded using the product key that came with the older PC. Please note that the following procedure does not apply to Windows 8.

The method for downloading the 'ISO' file (a single file that's a perfect representation of an entire CD, DVD, or BD) is as follows:

(01) Download either the Windows 10 Media Creation Tool ---------- (https://www.microsoft.com/en-us/software-download/windows10) or the Windows 8.1 Media Creation Tool (https://www.microsoft.com/en-us/software-download/windows8).

(02) Double click on the 'Tool' and click 'Yes' to give it permission to make changes to your PC.

(03) When the 'Tool' starts click 'Accept' to accept the license terms.

(04) Select 'Create installation media for another PC and then click 'Next'.

Please note that the Windows 8.1 version of the 'Tool' does not provide this option as it just defaults to creating the installation media for another PC.

(05) The 'Tool' will specify a language, edition and structure for Windows based on the PC on which the 'Tool' is running … click on 'Next if the installation is to take place on this PC.

(06) If the intention is to install on a different PC … clear the 'Use recommended options for this PC' then select the appropriate options for the license listed for your product key (e.g.) 'Edition' = Windows 10 and 'Architecture' 64-bit (x64) if that is the operating system on the old PC.

(07) At this point you can determine whether you want a bootable USB flash drive or an ISO file … click 'Next' after your selection.

(08) Select a folder to save the ISO file or indicate the USB drive for storage.

When the installation process has completed and you wish to create a disk for future use click on 'Open DVD burner'

The above described procedure is a useful method of transferring the license on an old PC running Windows 7 or Windows 8 (that has been upgraded to Windows 10) to a new unlicensed PC. Also, this procedure, can be used to install Windows 10 without the usual 'bloatware'.

Letters

Section 59.1 of the Land Surveyors Act

The Editor … The Link
c/o Association of British Columbia Land Surveyors
Suite 301 2400 Bevan Avenue, Sidney, BC V8L 1 WI

Dear Mr. Editor: Re: Section 59.1, of the Land Surveyors Act (The Link April 2016)

In his interesting recounting of a matter involving the above Act, Richard Redfern, BCLS, raises several issues which, since the dispute which raised the matter was subsequently settled, are now only theoretical. However, since Mr. Redfern invites comments, mine follow:

To commence, I will presume that readers will be acquainted with Section 59.1 of the Land Surveyors Act and will therefore not repeat it here.

Continued on Page 5 ➢

Continued from Page 4

In my opinion, Section 59.1 confers upon the land owner no right to refuse access to his land by a land surveyor performing his duties. The right of access is, in my opinion, absolute, and allows the owner no right to allow or disallow access based upon his (the owner's) judgement of the Surveyor's reasons for requesting access.

Put another way, Section 59.1 enables no owner to barter access conditional upon other matters related or unrelated to the Surveyor's purposes or reasons for so asking.

It is there in the Act, in plain words and the expectation of the Legislature, in enacting it, was, no doubt, that its literal meaning would prevail and it would be adhered to by all parties on either side of a dispute regardless of the basis of that dispute.

Having given my view, though, I would be interested in the comments of others.

John L. Motherwell, B.A. Sc.
British Columbia and Canada Land Surveyor
Consulting Professional Engineer

President's Message

Staying Afloat

By Ron Johns, BCLS, CLS, President

Summer is upon us and no doubt everyone is very busy. If you are like me, even with the longer daylight hours, there does not seem to be enough hours in the day to get everything done. This year, between, surveying, gardening, Board meetings, delegate travel and family time, sitting down to relax is becoming a foreign concept. Occasionally, despite a busy schedule, I have found a couple of days here and there for sailing and flying.

Since the AGM in Kimberley, I have attended the Alberta Land Surveyors Association AGM in Banff, The National Surveyors Conference in Edmonton and the Association of Newfoundland Land Surveyors AGM in St. Johns. In addition, your Board has had two teleconferences and one three day face to face meeting in Sidney. One discipline hearing was held, the results of which have been circulated to the membership. In conjunction with the face to face meetings, eight Professional Assessment Interviews were conducted, with seven candidates achieving a pass. All of the successful candidates have now been sworn in and on behalf of the Association, I would like to recognize their hard work, offer congratulations and welcome them as new Land Surveyors.

The Secretary Selection Committee has done its work and I am confident the skills and experience that Kelly Stofer, BCLS, will bring to this important and challenging position will be an asset to our association. We are fortunate that Chuck will be available to mentor Kelly as he transitions into his role.

At the National Surveyors conference, I attended a seminar titled "Exploring the Coordinate Cadastre in Canada", at which Mike Thomson, BCLS, delivered a well received and relevant presentation. Of the several speakers, Mike had the dubious honor of defending the 'post in place' regime, while most touted the virtues of a co-ordinate based cadastre. Those that did support coordinates were also careful to recognize some of the limitations and few went so far as to suggest a co-ordinate system as the utopian solution. Discussions on this subject have come up at virtually every president's forum and sister association meeting that I have attended in the last year. I raised the topic at the recent Board meeting, with the view to creating an ABCLS position on the matter. As geo-positioning technologies improve, we as professionals need to adapt, while at the same time ensuring the public is protected with a secure, reliable and useful cadastre. BCIT will be contacted to see if there is a student looking for a research project to complete their degree, who would identify jurisdictions that have implemented co-ordinate or hybrid co-ordinate cadastre's (physical monuments and coordinates co-exist) to help us to understand how our peers internationally have worked within this framework. The Association should be leaders in developing a document that articulates our viewpoint and the implications of a potential co-ordinate cadastre in the future.

Another topic, which is more of a "when" than an "if", is how the 'Big One' will affect the cadastre. Much work has been done on earthquake preparedness, defining

Continued on Page 6

Continued from Page 5

how we would undertake emergency services, cope with communication loss and infrastructure damages, etc. However, I am not aware of any planning on how we would deal with the impact of unknown differential shifts and distortions in the survey fabric. From what I have heard with respect to the recent Christchurch earthquake, surveyors faced a chaotic situation with very little idea (or perhaps many ideas) on how to treat not only posts that moved, but improvements that shifted, creating encroachments that did not exist previously. Being proactive by creating an 'off the shelf' disaster plan will put us in a position to move forward quickly when tasked with dealing with boundary problems in unusual situations and difficult times. The Board will discuss this initiative in more detail at its next meeting.

Our Past President has called a meeting of the nominating committee and the recruitment of nominees for the Board of Management will begin soon. If you are contacted, please give serious consideration to running. If you know anyone who you think would make a good candidate, please encourage them and pass their name along to the committee. Being a member of the Board is a rewarding experience and gives you an opportunity to impact the direction of the Association and build valuable, long lasting peer relations.

Planning for the 2017 AGM in Victoria is underway. Marna and I have been working on the social activities, the CPD committee is putting together a very engaging program and soon, the Board will be preparing the Notices of Motions and other items for discussion at the business session. We are certain that the venue location will be spectacular in April and hope everyone is planning to attend.

While keeping your head above water, I hope you find some time to relax and spend time with your friends and families. I wish all of you a wonderful summer and look forward to seeing you at the Fall regional group meetings.

Delegate Reports

Alberta Land Surveyors Association AGM ... Banff, Alberta

By Ron Johns, BCLS, CLS, President

The 107th ALSA annual meeting was held at the Banff Springs Hotel, April 14th to 16th, 2016. The meeting opened with a thought provoking keynote address from Mr. Bryn Fosburgh, Trimble Vice President. He suggested surveyors take a lead role in new technologies such as "Building Information Technology" (BIM). BIM is a future growth area, in which surveyors can be leaders in data acquisition and management according to Mr. Fosburgh. He spoke of the paradigm shift whereby changes in the consumer industry now change the professional industry. Professional industry requirements are driven by technical innovation. The angular and linear survey world is changing with the introduction of point cloud technology, with the ability to collect and store billions of points per hour. Fosburgh foresees future surveyor's roles changing from collectors of data to managers of data.

Seminars were held for the balance of the first day. The topics included, Diffusing Public Friction, Court Orders, Making Your Change a Successful Change, Survey of the 24th Baseline and Solving Urban Evidence Issues.

The Presidents attended a full day workshop to discuss CBEPS related matters. Marie Robidoux, CBEPS Chair, was in attendance and provided background on the history and current workings of the organization. She also reported on the current status of accreditations and exemptions at the various universities and institutions. She mentioned that CBEPS volunteers are tasked with too much work and that burn-out is a concern. Also attending was Dr. Derek Lichti, Geomatics Department Head from University of Calgary. Dr. Lichti spoke of the process and challenges that educational institutions face in maintaining exemption and accreditation status. Currently the CBEPS syllabus is very prescribed and the ability to effect change is difficult. He would like the syllabi subject matter to be more of a "living" document. A round table discussion took place with the Presidents sharing their Associations' opinions on the strengths and weaknesses of the current CBEPS model. Many aspects were brought forward including professor/ instructor qualification levels, funding and fees, foreign trained candidate adjudications and recognition, national vs regional needs and requirements and the role that a CBEPS undertakes around education vs assessment of the candidate body. The workshop could be summarized as a fact finding session. The information and ideas were recorded and will be utilized in the formation of recommendations to the CBEPS board of directors for consideration.

The AGM business meeting commenced on April 15th. President Greg Boggs addressed the membership, speaking on current issues facing the membership. These included

Continued on Page 7 ➢

Continued from Page 6

declining post sale revenues, the introduction of the hybrid cadastre, new Federal and Provincial governments and concerns around CBEPS. One of the highlights of the morning session was when the treasurer "sang" the budget.

Presentations and deliberations relating to the hybrid cadastre program dominated the business meeting. Mr. Ravi Shrivastava, Director of Surveys, informed the membership of the rationale around the decision to undertake this initiative.

Members had many questions and were clearly disappointed with the manner in which this initiative was advanced with very little consultation with the membership. Both the Association and Director of Surveys have the ability to set standards and it would appear there is a disconnect in the implementation of rules and standards by both parties relating to hybrid cadastre surveys.

Elections for council positions were held. Fred Cheng was elected as President by acclamation and an election took place on the floor for Vice President with Mike Fretwell being the successful candidate. Three new councillors were also elected.

Michelle Tetreault, Executive Director of the Board of the Alberta Common Ground Alliance gave an overview of buried facility damage prevention in Alberta. Twenty four hundred damages were reported last year with a repair cost of $300 million.

The Director of Land Titles, Mr. Curtis Woollard, discussed the plan to move forward with e-signatures and electronic documents for LTO submissions. Alberta will review the models that BC and other provinces have to facilitate this process.

Wilson Phillips, PSC Chair, updated the membership on recent undertakings, including position papers on buried facilities and a national advertising campaign designed to raise awareness of the land surveying profession.

CLS President, Anne Cole, spoke about recruitment due to the perceived shortage of CLSs in the coming years. She reminded membership that hydrographic surveyors can now be certified under the CLS program. Anne also called for nominees for the David Thompson awards and invited everyone to attend the National Surveyors Conference in Ottawa from March 1st to 3rd, 2017.

The ALSA receives the majority of its funding from post sales. With the recent economic downturn, this revenue source has dwindled. Members participated in an open forum to suggest alternate funding models. Many good ideas were generated from the discussion and council will no doubt be exploring some of these in more detail.

One motion relating to the adoption of standards relating to the hybrid cadastre and several house keeping motions were introduced and debated.

At the Awards Luncheon, Dr. Brian Ballantyne was presented with an Honorary ALS membership. Also Mr. Hugo Engler, ALS, BCLS, CLS was presented with a Life Membership.

Thank you to outgoing President Greg and his wife Catherine for the warm hospitality and friendship you extended to Marna and I during the meeting. Congratulations to new President Fred Cheng and his wife May.

Association of Canada Lands Surveyors AGM ... Edmonton, Alberta

By Ron Johns, BCLS, CLS, President

The 12th National Surveyors Conference was held from May 4th to 6th, 2016 at the Sutton Place Hotel in downtown Edmonton.

The first day was devoted to the seminar 'Exploring the Co-ordinate Cadastre in Canada'. Speakers included Brian Maloney, Jason Bond, Calvin Klatt, Mike Thomson, Ravi Shrivastava, Izaak de Rijcke, and Brian Ballantyne. Mr. Maloney spoke on the roles of the public, the government and surveyors with respect to the cadastre and raised the question of 'who owns the cadastre?' Calvin Klatt focused on topics such as plate tectonics and how co-ordinates and time interact as the earth moves under a fixed reference frame. Mike Thomson defended the mantra of "post in place" and that co-ordinates are of little benefit to the public. Co-ordinate positions have error ellipses associated with them, whereas he contended a monument is absolute and can be seen and touched. Ravi Shrivastava explained the hybrid cadastre program as it exists in Alberta and provided his rationale for its implementation, citing costs, stakeholder demands, and permanence of locations. Brian Ballantyne commented that the more human interaction

Continued on Page 8 ➢

Continued from Page 7

there is around boundaries, the less effective co-ordinates become. It was evident that a co-ordinate cadastre is not a panacea, but is something that we may be faced with in the future. I am certain that ongoing discussions and debates will occur at the various jurisdictions across Canada on this relevant subject.

During the morning of the second day there were two seminars, 'The CLS in the Offshore' and 'Providing a Foundation for Development on Aboriginal Lands'. Also during the morning, the Presidents and Executive Directors from our sister organizations were invited to the Canadian Council of Geomatics (CCOG) Cadastral Forum round table session. The Cadastral Forum Group of the Council consists of the Surveyors General and Directors of Surveys from across Canada, in addition to heads of other Government Departments and LTO officers. A number of topics were discussed including the 'Generally Accepted Survey Principles' document, the GeoAlliance initiative to provide geomatics curriculum materials to grade schools and underground facilities mapping. An overview of the TransPacific Partnership Agreement provided some insight into how it is intended to liberalize trade between countries and what effect if might have on the survey industry. The need for modernizing the Canadian Board of Examiners for Professional Surveyors was discussed, as was the Foreign Credential Recognition Initiative. Dr. Brian Ballantyne introduced his paper "Water Boundaries on Canada Lands: That Fuzzy Shadowland". The paper is available at no cost on the NRCAN website under earth sciences/geomatics/ Canada Lands Surveys/publications.

The luncheon Keynote speaker was Chief Louie of the Westbank First Nation. Westbank has been self-governing for 12 years, and in that time there has been a steady increase in both property values and outside investment. Chief Louis stated that one of the most important tools is a proper survey.

The ACLS 32nd Annual meeting was called to order by President Anne Cole.

A number of strategic initiatives were presented and included, promoting the value of the profession to citizens, advancing the marine cadastre, working on the Foreign Credential Recognition program, improving communications with the Surveyor General Branch and planning for the National Surveyors Conference in Ontario next year.

Nine new CLS commissions and one life membership were presented. Tim Koepke, CLS, BCLS, was presented with an Outstanding Service Award. Three David Thompson awards were also presented.

Jean Claude Tetreault, Executive Director, reported on a number of items. There is continued concern over the demographics of the association with many members nearing retirement. Volunteerism was also cited as a concern with approximately 75 volunteers out of 560 members. The Hydrographic Surveyors Certification is now reality, a project that has been worked on since 2003. The Finance Task Force is looking at ways to improve the bottom line, such as reducing the Executive Directors involvement on Committees and increasing the administration fees charged to CBEPS.

The practice review department reported that 14 comprehensive reviews were performed. The deficiencies were thin documentation, missing field records and check list questions not answered correctly. Eleven field inspections were undertaken in Quebec and next year field inspections will be done in Nova Scotia and New Brunswick.

Peter Sullivan, Surveyor General for Canada Lands, reported on the launch of a new website for the Canada-USA Boundary Commission, survey contract statistics, conversion of all records to digital format, and the updating of the Standards Manual. The Precise Point Positioning tool has been re-engineered and will work faster in the coming months as new features are implemented. He also mentioned two large survey contracts, the first that involves the staking of a large portion of the Nunavut-North West Territory boundary. The boundary has been found to be up to 10 km different in some places than that which is shown on the mapping imagery. This survey is being driven by mining exploration in the area. The second survey is the Rouge National Park Boundary survey near downtown Toronto. Apparently this park is 14 times larger than Central Park in New York.

Tanya Bigstone is the incoming President and in her address she spoke of some of the challenges ahead for the profession and also took the opportunity to invite everyone to the 2017 National Surveyors Conference to be held at the Shaw Centre in Ottawa from March 1st to March 3rd.

I would like to thank Anne Cole and Jean Claude Tetreault for hosting this meeting and welcome Tanya Bigstone to her new role.

If lawyers are disbarred and clergymen defrocked, doesn't it follow that electricians can be delighted, musicians denoted, cowboys deranged, models deposed, tree surgeons debarked and dry-cleaners depressed?

Association of Newfoundland Land Surveyors AGM ... St. Johns, Newfoundland

By Ron Johns, BCLS, CLS, President

The Newfoundland Surveyors held their 63rd Annual General Meeting at the Capital Hotel in St. Johns from May 27th to 28th, 2016. The meeting was opened by President Cliff Hawko. Following his opening remarks, welcomes were given by Councillor Tom Hann of the City of St. Johns and by Honorable Perry Trimper, Minister of Environment and Conservation, Province of Newfoundland and Labrador.

David Hearn, a local lawyer, gave a presentation on the Mechanics Lien Act and remedies that might be available to those who have provided services on land, including land survey services.

Peter Sullivan, Surveyor General for Canada, delivered a report similar to the one he presented at the National Surveyors Conference in Edmonton earlier in the month, which can be read in my report on that meeting.

An interesting presentation was given by Mark Kennedy, a GIS consultant, on the applications of Unmanned Aerial Vehicles (UAV's). He discussed how they are being used for aerial photo projects and covered such topics as applications, regulations, flight planning and end products.

Ian Edwards, P.Eng, NLS, CLS, spoke on the LandGazette system. Due to Newfoundland not having a central registry for the deposit of survey plans, a concept somewhat similar to our Parcel Map BC was developed and became operational about 10 years ago. Provincial base mapping was used as the backdrop and ongoing uploading of plans was to be done by surveyors on a go forward basis. The software allows surveyors to cogo their plans directly into the data base. The interesting part is that individual surveyors can set a fee for others to download the cogo file from a plan they have submitted. The first $8 goes to the LandGazette entity and the balance goes to the originating surveyor. The problem is that the input is not mandatory and less than 10% of plans produced are being entered. Later in the meeting a motion was introduced to make it mandatory to submit plans into the system. The motion was very controversial, however, it passed with a 2/3 majority when it came time to vote. To allow for surveyors to ease into the requirement, 33%, 66% and 100% of plans in years one, two and three respectively are to be submitted.

Tanya Bigstone, ACLS President, reported on the recent National Surveyors Conference in Edmonton. She spoke about the Foreign Credential Recognition Program, the David Thompson awards and the upcoming National Surveyors Conference in Ottawa next March. She also mentioned that the ACLS can now certify Hydrographers. Various committee reports were circulated prior to the meeting and committee representatives were available for questions from the floor. The registrar reported a total membership of 108 with 71 in active practice. One new Land Surveyor was commissioned this year.

A discipline case resulted in a member being fined $48,000 on the first offence and $20,000 on the second offence. The member was also suspended. The case cost the Association over $100,000 in legal fees and other costs and they have had to borrow from investments to cover the expense.

A motion to add a surcharge of $1.00 per survey post to build a contingency fund to cover costs of discipline hearings when costs are not recoverable from the accused was passed.

Seven council seats were elected by acclamation. Last minute nominee's for Vice President and Secretary were accepted and also elected by acclamation.

A motion regarding changes to the nominations and voting procedures for council members was passed. The new requirement will provide for advance notice to the membership of those intending to run for council, thus eliminating the last minute nature of the election process.

John Berghuis was installed as the new President. Coincidentally, both John and Cliff have served as President in the past.

Marna and I enjoyed representing our association at the meeting. The Newfoundland spirit and hospitality was first class and thanks are in order to Cliff and his wife Dorothy for the east coast welcome. I would like to extend congratulations to incoming President John.

Relationships - of all kinds - are like sand held in your hand. Held loosely, with an open hand, the sand remains where it is. The minute you close your hand and squeeze tightly to hold on, the sand trickles through your fingers. You may hold onto some of it, but most will be spilled.

A relationship is like that. Held loosely, with respect and freedom for the other person, it is likely to remain intact. But hold too tightly, too possessively, and the relationship slips away and is lost. (Kaleel Jamison)

Land Title and Survey Authority of British Columbia

By Mike Thomson, BCLS, Surveyor General

This article is prepared from speaking notes used at the ABCLS Spring Regional Group Meetings, May 16th, 2016 - Nanaimo, May 18th, 2016 - Kamloops, May 19th - Burnaby and June 20th - Fort St. John.

Considerable updating has occurred by virtue of the length of time of time between the Spring meetings and the article being submitted.

1. Introduction

It is my pleasure to provide an update on current activities at the Land Title and Survey Authority, and in particular within the Surveyor General Division.

Recently the LTSA celebrated two major events. The first being the filing of the one Millionth Survey Plan. Prepared by Matt Onderwater, BCLS the plan, EPP51881 is a subdivision plan, done as a Block Outline Survey, in the District of North Vancouver. The underlying cadastral fabric was created under the Replotting Provisions of the Municipal Act in 1966 by George Miller, BCLS - so the site has an interesting history.

It is our understanding that the first plan filed under the *Land Registry Act* was in 1860 and was prepared by land surveyors procured by Governor James Douglas. The three land surveyors involved were Robert S. Lammat, James Freeman and F. W Green. The Registrar General for the Colony of Vancouver Island accepted the plan on October 29th, 1861.

Our other major event was the 155th Anniversary of the opening of the first Land Registry Office, officially April 5th, 1861.

An early editorial by Amor de Cosmos said:

"The Land Registry Office was opened yesterday. For all the good it will do the country, it may as well be shut up. In fact it would be in the end a great deal better for the community were the office closed at once. The Land Registry Act is nothing but botch legislation. It is essentially a humbug; and will remain on our statutes a standing monument of Mr. Cary's inexperience and unfitness to legislate for the good of the country."

Mr. de Cosmos, it appears, was a bit of a cantankerous soul; he wrote this in an editorial in "The British Colonist" newspaper 155 years ago. The reference to 'country' by Mr. de Cosmos occurring because it was still 10 years before BC joined the Canadian Confederation. He went on to become premier of the Province, but had just recently been defeated by Mr. Cary in an election, so there were definitely some sour grapes in his editorial. Mr. de Cosmos was originally born William Alexander Smith - and changed his name while resident in northern California.

The months of March, April, May and June continued the very busy trend of the last year. For the full fiscal year ending March 31st, 2016 core business finished at 116.6% of budget, so a very busy year overall.

As most revenue is based on land title activity the real estate market is a good forbearer of what we can expect. Transfers usually trail sales activity by about 60 days.

On April 15th, 2016 the BC Real Estate Association reported:

Continued on Page 11 ➢

Continued from Page 10

"that a record 12,560 residential unit sales were recorded by the Multiple Listing Service® (MLS®) in March, up 38 per cent from March of last year. Home sales last month eclipsed the previous record of 11,683 unit sales in May of 2007. Total sales dollar volume was $9.69 billion in March, up 66.9 per cent compared to the previous year. The average MLS® residential price in the province was up 20.2 per cent year-over-year, to $771,620."

This should mean we will remain busy through the summer months.

Additionally we remain fully engaged on our ParcelMap BC project and I will spend some time discussing it a little later. The major accomplishment was the mid-April release of our Surveyor Search and Download technology that allows land surveyors to access the **completed** portions of the ParcelMap BC fabric. Currently seven of the 18 increments are available.

For land surveyors, we are now into mandatory submission of Survey Plan Datasets.

The requirement for Survey Plan Datasets to be submitted with all surveys commenced June 15th, 2016 for all plans with an electronic checklist date of May 23rd, 2016 or later. As of September 1st, 2016 plans will require a Survey Plan Dataset regardless of the ECR completion date.

I note the LTSA continues as a publicly accountable, statutory corporation which operates and administers BC's land title and survey systems. The LTSA has published its three year Business Plan for the period 2016/2017 to 2018/2019. It can be found at http://www.ltsa.ca/docs/LTSA-Business-Plan-2016.pdf. I would encourage everyone to go and have a look.

We are focused on our four major strategic objectives, which include:

Stakeholder and Customer: In collaboration with the Province, maintain confidence in the integrity of the land title and survey systems of British Columbia

Quality and Efficiency: Improve and deliver professional, consistent and responsive services to meet customer needs

Learn and Improve: Ensure the optimum structure, people and tools for the effective operations of the LTSA

Financial: Ensure the financial stability of the LTSA through sound financial management and development of new business initiatives

The LTSA Executive team met with the LTSA Board in a Strategic Planning Session on June 28th, 2016 at which time we considered how we best move the LTSA forward in our goal of providing customers with the best service possible, within the financial realities we operate under.

We are planning for a Stakeholder Survey in fall 2016. I hope you will all be willing to participate when that survey is released.

We could not do our work without the support and good work of BC land surveyors, and the contributions you make to the land title and survey systems. Thank you.

2. Organizational Changes

The Surveyor General Division has undergone some changes in our workforce. Our Crown Grant Services team lead Doug Ford retired at the end of May so we have completed some internal shuffling.

Continued on Page 12

Continued from Page 11

Three members of the LTSA Board have been reappointed, effective April 1st, 2016 for new three year terms. They are:

- Bert Hol, BCLS a nominee of the Association of BC Land Surveyors;
- Victoria Kuhl, a nominee of the Union of British Columbia Municipalities; and
- Diane Friedman a nominee of the British Columbia Association of Professional Registry Agents

In addition, as of April 1st, 2016 the LTSA Board welcomes a new member, Ron Cannan, a nominee of the Province of British Columbia.

Our team of professional staff, Jeff Beddoes, Cristin Schlossberger, Dave Swaile and Peter Haas remain available to serve you as best as they can.

We note that in mid-April we put out a posting for a 'full time temporary' land surveyor to fill the role of Deputy Surveyor General. Jeff Beddoes will be reducing his time at work in the next year and we need to fill this gap. For the right person the role will morph into a permanent position.

Our dedicated technical staff is fully engaged in day to day business, supporting First Nations Treaty Settlements, supporting the Provinces Crown Grant program and offering support to the ParcelMap BC build where and when they can.

Brian Greening continues his stellar leadership of the ParcelMap BC project and team.

3. LTSA 2015/2016 Year in Review

We completed the 2015/2016 fiscal year on March 31st, 2016 and are now three plus months into our new fiscal year. Our annual report was released June 17th, 2016, shortly before our Annual General Meeting on June 29th, 2016 (2015/2016 Annual Report). Here are some numbers:

In 2015/2016 the land title offices processed 811,000 land title registration applications, a 14% increase from the 710,000 in the previous year, and further ahead of the 670,000 in the 2013/2014 fiscal year. (The LTSA processed a total of approximately 3.9 million on line transactions.)

In 2015/2016 the Surveyor General Division confirmed a total of 1,596 Crown land survey plans, an increase of 38 (2.4%) from the previous fiscal year but well behind the 1,876 survey plans in the 2013/14 fiscal year and further below the 2,312 survey plans in the 2012/2013 fiscal year.

We issued 90 Crown grant documents, down significantly from the 119 in the 2014/2015 fiscal year and the 114 in the previous year, and slightly above the 85 in the 2012/2013 fiscal year.

We also processed 323 statutory applications, down 9 or 2.7% from the 332 in the previous year, and above the 298 in fiscal 2013/2014 and the 307 in fiscal 2012/2013.

In the year we also responded to 875 (930 the previous year) requests for copies of survey plans and field notes from the Surveyor General's records.

3.1 Electronic Plan Updates:

In the 2015/16 fiscal year we saw:

- 99.8% (10,645 of 10,671) of all survey plans filed electronically. The 23 mylar plans are well below the 80 in the previous year, where 99.2% (10,219 of 10,299) of all survey plans were filed electronically in the Land Title Office. These numbers compare to 97.2% of all survey plans being filed electronically in the Land Title Office in fiscal 2013/2014 and 84.9% in fiscal 2012/2013.

Continued on Page 13 ➢

Continued from Page 12

- In 2015/2016, the 10,671 survey plans filed was 3.6% (372) above the 10,299 survey plans received in the 2014/2015 fiscal year.
- In 2015/2016 there were three month's September, December and March where all plans (100%) were filed electronically.

As we start the 2016/2017 fiscal year:

- In April all 904 plans were filed electronically.
- In May 2016 all but 1 of 1,089 plans were filed electronically.
- In June 2016 all but 1 of 916 plans were filed electronically.
- Through the first quarter of fiscal 2016/2017 the total number of plans deposited in the land title office was 2,908, 3.5% or 99 ahead of the 2,809 in the same period in fiscal 2015/2016.

4.0 ParcelMap BC Update

Work continues very aggressively on our ParcelMap BC project.

As noted above - on April 22nd, 2016 we launched our Surveyor Search and Download service that allows land surveyors and their delegated employees to access the portions of the fabric that are **completed**.

To review; the primary objective of the ParcelMap BC project is to: deliver a **single, complete, trusted, and sustainable** map of all active titles in the land title register and all surveyed provincial Crown land parcels.

We continue to work with stakeholder organizations which supported the development of the PMBC business case through the PMBC Advisory Committee, including:

- The Province of British Columbia
- Integrated Cadastral Information Society - ICI Society
- The Association of BC Land Surveyors - ABCLS
- BC Assessment Authority - BCA

PMBC Current Status

- Increments No. 5 and 6, the Fraser Fort George and Bulkley-Nechacko RD's, have been accepted and are in the LTSA's published parcel fabric. Work on catch-up plans preceded quickly, such that these increments were included when we went live with Surveyor Search and Download.
    - As of May 16th, 2016 Increments No. 7 and 9, the Kitimat-Stikine, Skeena Queen Charlotte, Central Coast and Cariboo RD's, had been accepted and are now available in the LTSA's published parcel fabric, for land surveyor consumption.
- What this means is that we now have Increments No. 1, No. 2 and No. 3 on the south half of Vancouver Island and Increments No. 5, No. 6, No. 7 and No. 9 available in the published fabric that is currently available to all land surveyors.
- We will soon be adding additional areas of the province to that currently available, the status of which is as follows:
    - Increments No. 11 and 12, the Columbia-Shuswap, East Kootenay, North Okanagan, Central Kootenay and Kootenay Boundary RD's, compilation work is substantially complete. We anticipate LTSA acceptance will occur on or about August 26th, 2016. These increments should be in the published fabric within four weeks of LTSA acceptance.
    - Increments No. 10 and 13, the Thompson-Nicola, Okanagan-Similkameen and Central Okanagan RD's, compilation work is underway and is nearly complete. Acceptance is targeted for November 28th, 2016.

Continued on Page 14 ➢

Continued from Page 13

- Increments No. 14 and 15 the Fraser Valley, Powell River, Squamish-Lillooet and Sunshine Coast RD's have completed 'data assessment' and compilation is approximately 25% complete.

A target date for acceptance has been set as February 3rd, 2017.

- Increment No. 4, the Alberni-Clayoquot, Comox Valley, Strathcona and Mount Waddington RD's has had the source data provided and is prioritized for compilation. Acceptance is targeted for September 23rd, 2016.
- The project to map the missing SRW's over Crown Land in the Northern Rockies and Peace River RD's is proceeding extremely well and the work is ahead of schedule. Approximately 4,336 plans have now been COGO'd, and mapping is underway. This work is well ahead of schedule. As a result Increment No. 8 has now had the source data provided, is in compilation, and is targeted for acceptance on September 23rd, 2016.
- The five increments within the Greater Vancouver Regional District have been re-planned to reduce the number of test cycles to 3. Now known as Increments A, B and C the compilation in the GVRD will commence late August or early September 2016.

In regards to the rest of the project we note:

- The overall compilation remains on target to reach full operational capacity by May 31st, 2017. This is two months behind our published target throughout the 2015/16 fiscal year, but on target with the original build plan.
- We continue to meet regularly with the Land Surveyors Advisory Task Force (LSATF) and want to thank this group for their work assisting us with Usability Testing for the Surveyor Search and Download tools.
- The last training session for Survey Plan Dataset Submissions was held March 31st, 2016. Training for the Surveyor Search and Download tools kicked-off on April 29th, 2016, with further sessions in May and June. The next session is scheduled for October 4, 2016.
- Release 4, ParcelMap Direct and Parcel Information Search for myLTSA account holders was released into the LTSA's production system on July 10th, 2016. We are currently working to push Parcel Information Search out to myLTSA account holders at the beginning of August.
- The ParcelMap Direct service will be pushed to stakeholders in August or September 2016. I should have information for land surveyors during the Board trip in September.
- The ParcelMap BC team remains very focused on the build of the complete fabric. The team is extremely busy.

In summary I am very pleased with where the project is currently at and excited that we now have the ability to provide land surveyors with access to the fabric, even if it is in a limited part of the province. In something close to a year we will have the entire province available.

I hope some of you have had a chance to use the Surveyor Search and Download tools, the searching options are providing an excellent opportunity to search for land title register and Crown land registry records in an intuitive visually based matter.

6.0 Surveyor General Division - Upcoming or Recent Events

LTSA Communications - ParcelMap BC

On a number of occasions I have spoken, or written to land surveyors about the challenges the Federal anti-spam legislation (known as CASL - the Canadian Anti-Spam Legislation) creates in my ability to communicate to land surveyors on matters that I think are important for you to know about. I will try and spare you the gory details but the LTSA has had to create various communications channels to be in compliance with the legislation.

As such we have relied heavily on the ABCLS Office in supporting the distribution of materials related to ParcelMap BC. I want to thank the ABCLS Office, Chad, Vicki and Denise in particular for that support.

Continued on Page 15 ➢

Continued from Page 14

That being said I would strongly encourage you to ensure you subscribe to two of the communications channels we have.

The first myLTSA Systems Updates addresses changes to our systems and will include information about ParcelMap BC on a go forward basis.

Land Title matters is for communications from the Director of Land Titles and is tied to legislative and policy matters affecting the land title systems. We are investigating whether we need to - or if we can - create a similar communications vehicle for land surveyors. The note below was included in an ABCLS Office Update on April 21st, 2016.

Subscribe to LTSA E-Communications to Stay Informed about ParcelMap BC

Land surveyors are reminded to subscribe to the LTSA e-communications in order to stay informed about ParcelMap BC. Be the first to know about the availability of ParcelMap BC Search and other myLTSA enhancements by subscribing to receive myLTSA System Updates. Stay informed of land title legislative and practice changes from the Director of Land Titles by subscribing to Land Title Matters. The monthly E-Newsletter provides a summary of the latest news at the LTSA. View instructions on how to subscribe.

Parcel Activity Notifier

On April 18th, 2016 the LTSA announced the availability of a new parcel monitoring service on myLTSA enterprise. The Parcel Activity Notifier alerts myLTSA customers when there is activity on a parcel of land they choose to monitor. Notifications are delivered to the customer's myLTSA InBox and can be automatically forwarded to multiple email addresses.

Continued on Page 16

Continued from Page 15

At a modest $5.00 for a 180 day period it is an excellent way to track activity on parcels you are working on or perhaps have a personal interest in. Many solicitors use the service to monitor activity on client's titles, in particular when there is construction or sales activity.

GeoBC and the Move to a New Vertical Datum CGVD2013

As many of you are aware, GeoBC has been working with Geodetic Canada and other parties to prepare for an eventual move of the vertical datum to CGVD2013 from the current CGVD28.

The Surveyor General recently hosted a productive meeting with GeoBC on the plans for the conversion from CVD28 to CGVD2013. Mike Taylor, Ryan Hourston and Peter Goodier participated for the ABCLS, with Dan Parker and Scott Netherton representing local governments. GeoBC presented a plan, with a target for province wide implementation set for January 1st, 2018.

They have also committed to an article in this or a future edition of the LINK. We are hopeful the article will lay out what land surveyors can expect from the transition from CVD28 to CGVD2013.

Boundary Commissioner

One of the roles I fill on behalf of the Province is that of Boundary Commissioner representing BC.

The Boundary Commission met in May 2016 to review progress on a number of items related to the Alberta - BC Boundary. I do this work with my counterpart in Alberta and the Surveyor General of Canada Lands, Peter Sullivan based out of Edmonton. Dave Swaile, Deputy Surveyor General has provided an article on Boundary Commissioner activities elsewhere in this edition of the LINK.

Recently the LTSA and the ABCLS have provided seed funding to author Jay Sherwood for research in the development of a book, tentatively called, Surveying the Great Divide, which will chronicle the history of the great work land surveyors have done on the Alberta - BC Boundary.

Approving Officers Workshop

On June 21st, 2016 there was an Approving Officer's Workshop held in Nanaimo. The sessions were sponsored by the Local Government Management Association (LGMA) and supported by the LTSA and ABCLS. This year I presented on our ParcelMap BC project.

Then on June 23rd, 2016 I spoke to assembled attendees in a concurrent session at the LGMA main body 2016 Annual Conference.

ICI Society User Conferences

To date the Integrated Cadastral Initiative Society has not set their User Conference schedule for 2016. Primarily they are waiting for the availability of the ParcelMap Direct product so they can use the sessions to promote adoption of ParcelMap BC by local governments. We look forward to supporting those sessions.

I would like to thank the group, and each of you, for allowing me this time. We all seem to be very busy these days, and I do appreciate you allowing me to communicate with you.

If you have an apple and I have an apple and we exchange these apples then you and I will still each have one apple. But if you have an idea and I have an idea and we exchange these ideas, then each of us will have two ideas. (George Bernard Shaw 1856-1950)

Creating Perfect Plans

By Gordon Gamble, BCLS, CLS - Practice Advisory Department

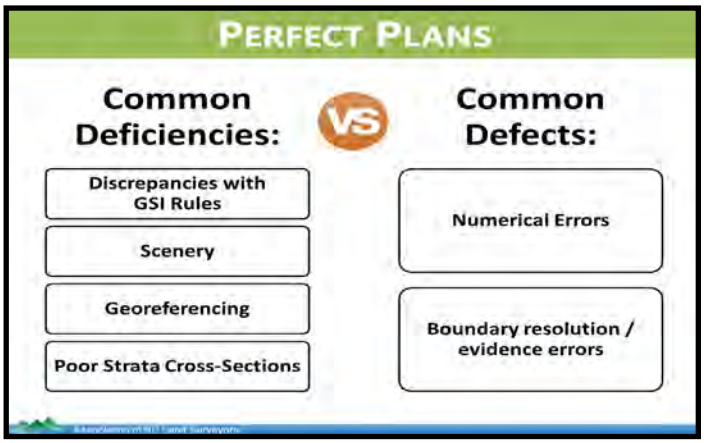
Introduction

While creating a perfect plan may seem like a lofty goal, this should nevertheless be our objective each time we prepare a survey plan. We have a professional obligation to create the best possible document to clearly and accurately represent our research and field work. The plans we produce may end up in the LTSA registries (in the case of statute plans) and/or with our clients or other professionals.
The plans that land surveyors produce are critical in the creation and maintenance of the Provincial cadastre and are frequently the basis for high value land development projects. Clearly, attention to detail and rigorous quality assurance processes are essential when preparing plans. All users of plans produced by land surveyors must have confidence that the information shown is correct.

Although this article deals with statute plans, the same general principles of due diligence and standards of care apply to the non-statute plans that we produce. We describe the most common deficiencies and defects noticed by the Practice Advisory Department (PAD) during the course of Plan and Practice Reviews. Each of these deficiencies/ defects is described and procedures are suggested to detect and correct them BEFORE the plan leaves the office.

The terms "deficiency" and "defect" are used regularly in this article, as well as in Plan and Practice Reviews and in the PAD statistical reporting - but what do these terms mean? PAD uses the term **"deficiency"** to describe a minor contravention of a GSI Rule or some aspect of well-established standard practice. An example is the failure to show primary parcel information on a plan - this is a contravention of the GSI Rules. The most notable feature of a "deficiency" is that it **does not** adversely affect the public interest or the cadastre.

The main categories of "deficiencies" and "defects" are shown in the table below.



A **"defect"** as defined by PAD, is a serious breach of survey rules or survey practice which has or could have a negative impact on the public interest or the cadastre (for example, incorrect dimensions or areas shown on a plan). When PAD conducts Plan and Practice Reviews "Defects" always lead to Conditional Reviews, and some action is required by the practitioner to correct the defect.

Common Plan Deficiencies

Discrepancies with GSI Rules

Discrepancies with the GSI Rules are THE most common fault that PAD finds when doing Plan and Practice Reviews. Here are the steps to take to reduce or eliminate this source of plan discrepancies:

- The GSIR is updated twice a year. Ensure that blocks and drawing templates are updated when rule changes are announced. All practitioners are notified well in advance of new rule implementation and most rule changes go out to members for review and comment before being finalized. There is no excuse for not being aware of changes when they occur.
- Resist the temptation to copy old drawings or use older templates to save time. Update your templates and use them.
- Pay attention to comments made in your plan reviews and update templates as necessary.
- If you are in a multi-surveyor/multi-office company, make these changes company wide.

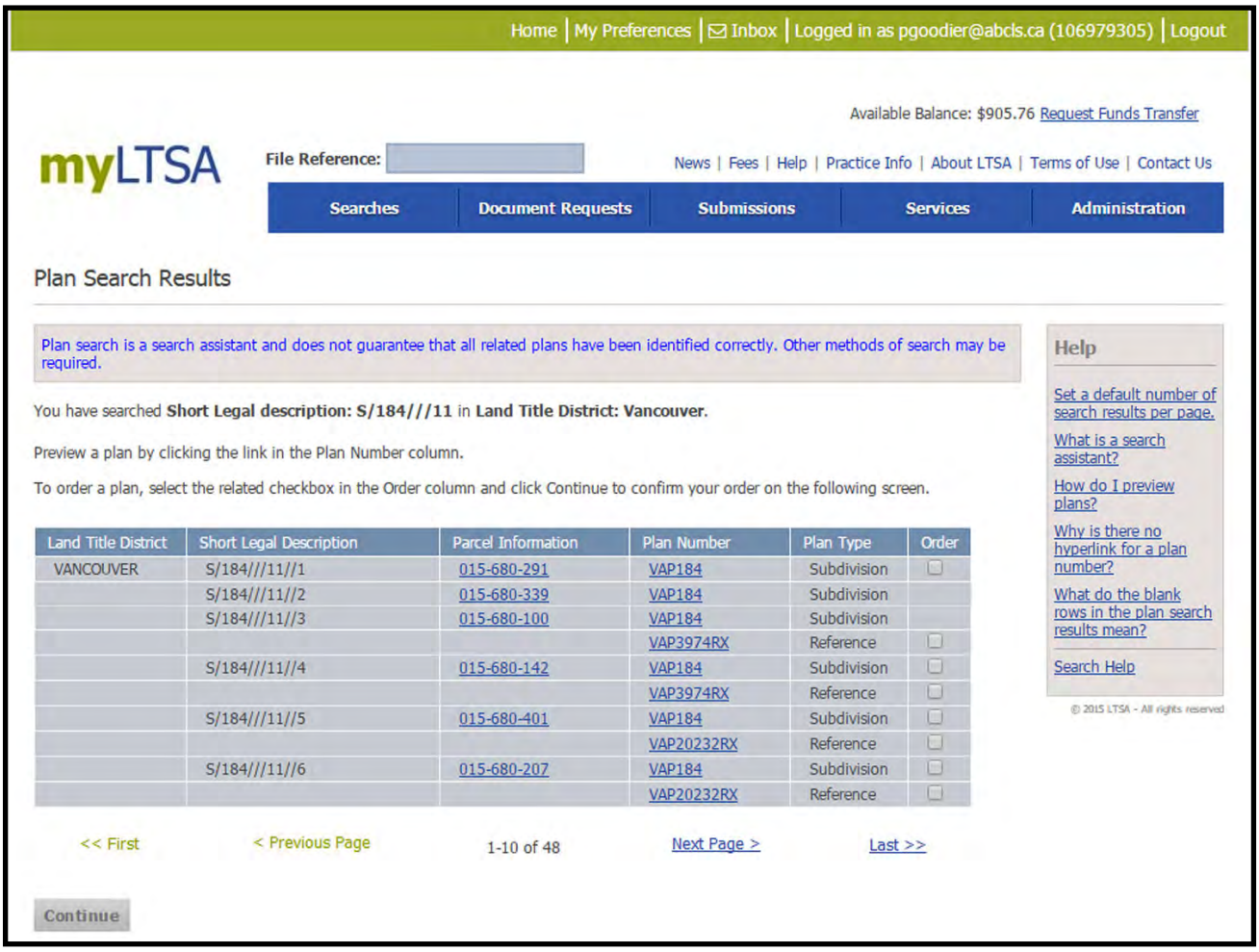
Scenery Errors

Scenery errors are the second most common source of plan deficiencies. In 2014, 30% of plans had scenery errors. Here again, there are tools available to eliminate this source of defects from your plans as follows:

- Check scenery against other up-to-date mapping if you trust the source (e.g. municipal mapping)
- The best scenery checking method is to verify through LTSA records:

Continued on Page 18 ➢

Continued from Page 17



- Use "Plan Search by Short Legal" function in MyLTSA
- This gives you access to legal descriptions, related plans and miscellaneous notes in one screen as illustrated above.

Following a methodical process of checking your scenery against a reliable source such as LTSA records will ensure you have the most up to date information on your plan and will confirm that you have not missed any plans which may show evidence relevant to your survey.

Also, remember to check miscellaneous notes as some types of plans and documents relevant to your survey may not appear under the "Plan Search by Short Legal" function.

Georeferencing

Georeferencing is a relatively recent mandatory requirement and the georeferencing data shown on your plan is important for Parcel Map BC.

Pay attention to:

- Separation between GNSS points for bearing derivation - this must be a minimum of 150 metres unless an exemption is granted.
- Horizontal Positional Accuracy - this is an important quality attribute for your georeferencing data and is used by PMBC in building the cadastral base map. See article on the PAD website.
- Using the correct datum - see Circular Letter 463

There is resource material available on the ABCLS website which speaks to various aspects of georeferencing, plan preparation and calculation of Horizontal Positional Accuracy.

As a side note, all land surveyors should be aware of the imminent changes regarding submission of data sets. Please read Practice Bulletin No. 3 on the LTSA website. This document also provides a link to the data set specification document.

Continued on Page 19 ➢

Continued from Page 18

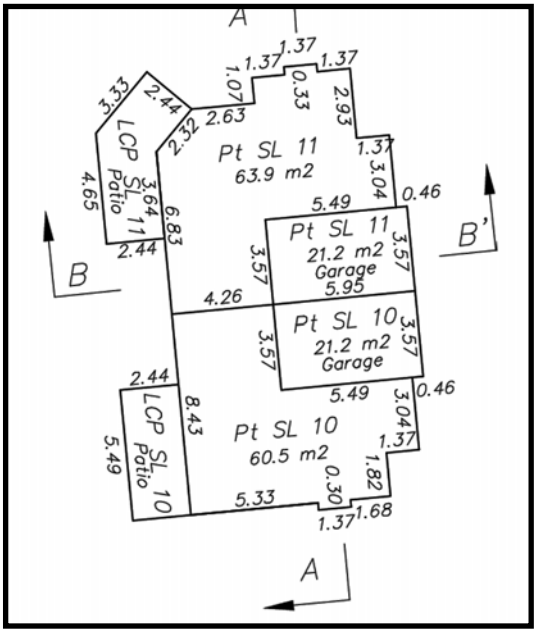
Strata Cross Sections

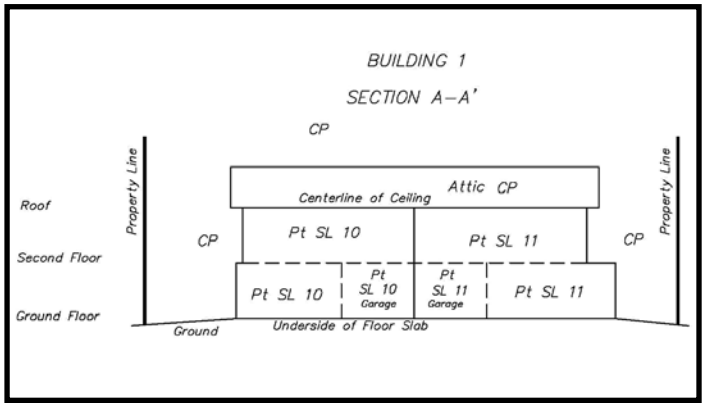
LTSA Practice Note 01-12 made cross sections a requirement for all building strata plans. The primary purpose of cross sections is to clarify the relationship between strata lots and common/limited common property elements of the strata. Cross sections are particularly useful in illustrating the vertical limits of such elements which may not appear on the floor plan drawings (e.g. attic spaces, crawl spaces etc.).

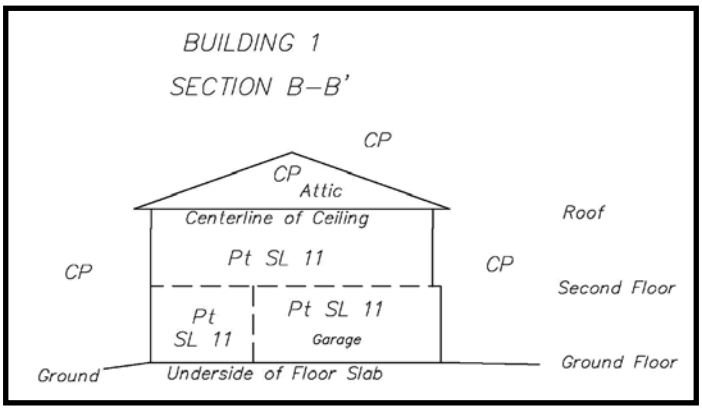
We find two main issues with strata cross sections. Firstly, many practitioners do not seem to clearly grasp the distinction between and "elevation view" and a "cross section". We often see some sort of hybrid version that is part elevation and part cross section. Remember that a cross section is a vertical "slice" through the building. It may be beneficial for the sake of clarity to show elevation views as well.

The second issue is that many practitioners only show one cross section. It is our interpretation of LTSA Practice Note 01-12 that the reference to "cross sections" means more than one. We strongly encourage showing at least two cross sections, usually at 90° to each other. If more are needed to depict important aspects of the strata, this is also encouraged. Consider that the end user of your plan will likely be a strata owner or a member of the strata council who will not necessarily be well versed in interpreting cryptic strata plans.

With increasing number of strata plans being registered, clear depiction of cross sections are a very important item to do properly. The following illustrations show some of the more important points to keep in mind:







Section arrows point in the direction of the view.
A minimum of two sections per building.
Show attic and roof areas with designations (Common Property, LCP, Part of strata lot etc.)
Show relationship between strata lots and common property and other elements in the building

Common Plan Defects

As mentioned above, a "defect" in a plan is an item which has or could have a negative impact on the public interest or the cadastre (for example, incorrect dimensions or areas shown on a plan). Plan "defects" always lead to Conditional Reviews which require some action by surveyor such as filing a statutory declaration and/or filing a new plan to correct an error. Clearly, correcting such errors takes time and effort for which the practitioner is not reimbursed. For this reason (amongst many others), every possible effort should be made to implement quality assurance procedures which will avoid plan defects. Below we discuss the two most common plan defects and PAD's suggestions for proactively addressing the root causes of these errors.

Numerical Errors

This is by far the most common type of plan defect. Such defects can be avoided with proper quality assurance procedures. The most important QA procedure is a rigorous map check wherein each dimension and area on the plan is

Continued on Page 20 ➢

Continued from Page 19

checked through an "independent" closure/checking routine. By "independent" we mean separate from the calculations you have done to create the plan.

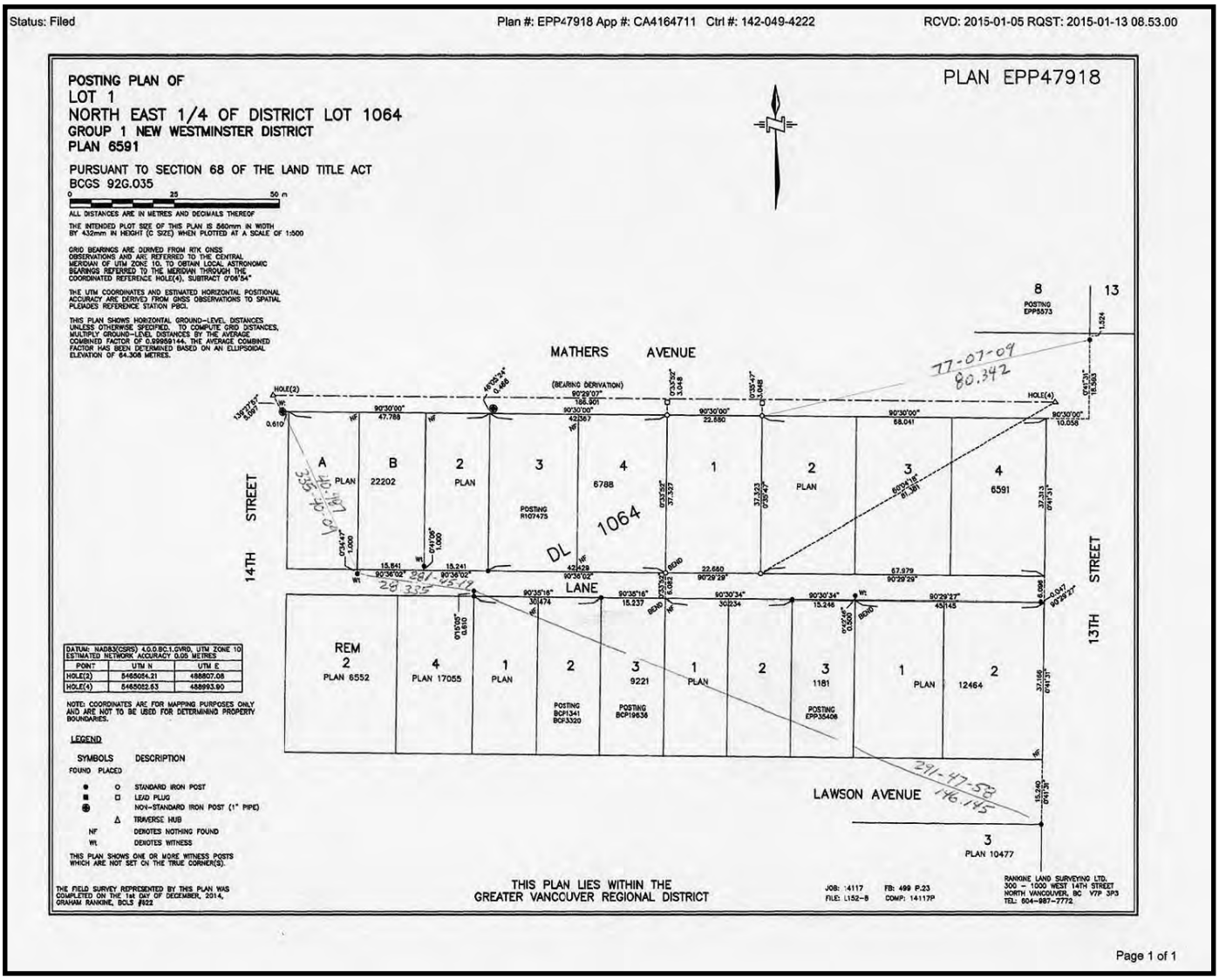
The other important part of a rigorous QA procedure is to check every dimension against underlying plans - large discrepancies need to be investigated and confirmed. This often identifies gross errors in a plan.

The first step in doing a rigorous map check is to ensure you have a way to check hanging lines. One option is illustrated in the plan below. Here, inverses are created in the COGO file and transferred to a check print of the plan (we suggest using a hard copy of the plan for this task). These inverses can then be used for input into a closure routine to check the integrity of the plan dimensions.

Next, use a highlighter and mark off each bearing and dimension on the plan check print as you input these into your map checking program. Ensure each figure closes properly and where relevant, check the resulting area against the area stated on your plan.

Any misclosures or discrepancies should be noted on the check print and further analysis undertaken to determine the source of the problem. The plan can then be corrected. Following such corrections, we strongly suggest redoing the independent check to ensure the issue has been successfully resolved.

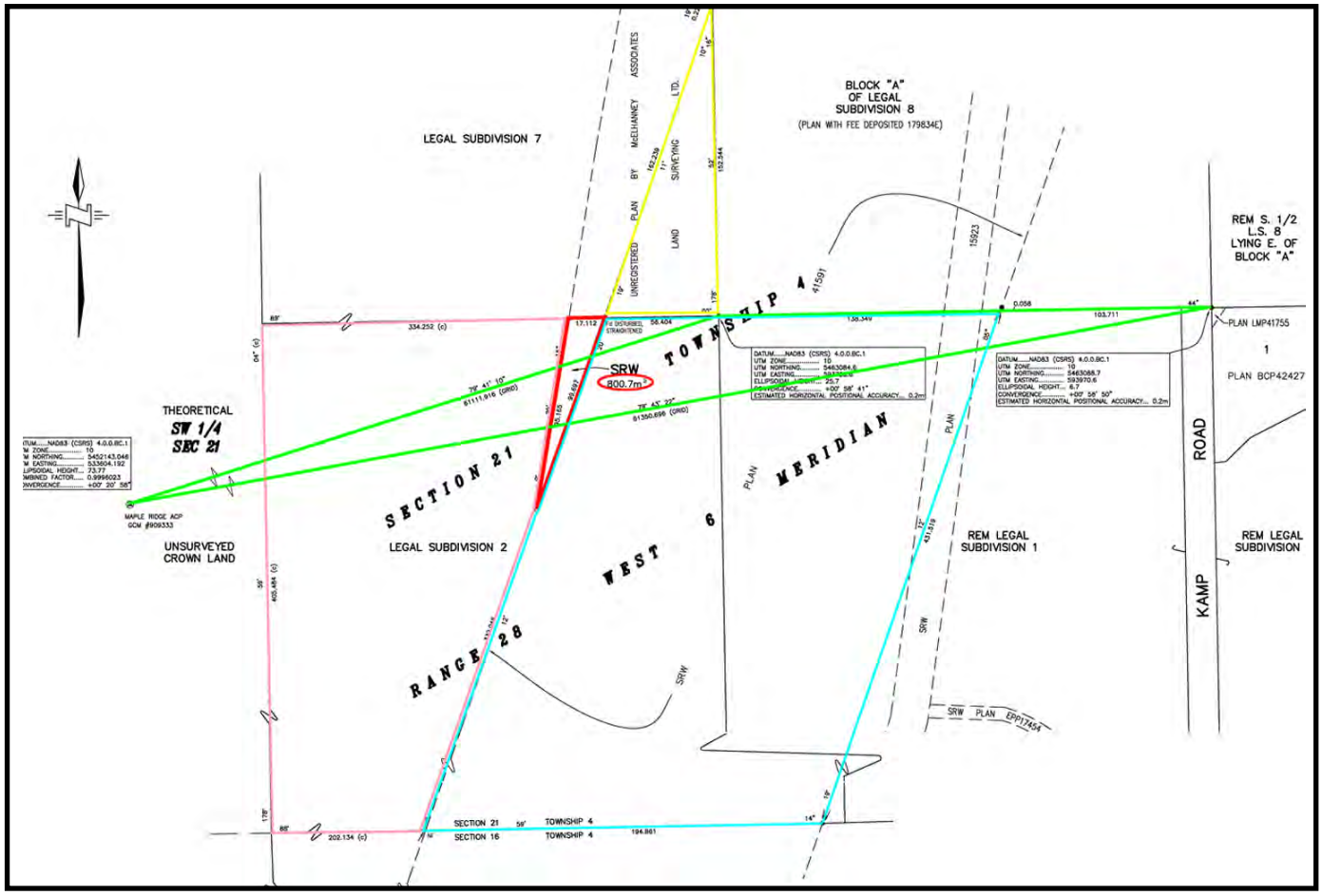
If you follow these steps, it should be virtually impossible to have a numerical error on your plan.



Inverse all hanging lines and transfer to a check print of the plan

Continued on Page 21 ➢

Continued from Page 20



Input each bearing and dimension on your plan into a mapcheck/closure routine to ensure integrity of your survey

Boundary Resolution/Evidence Defects

The second most frequent defect PAD finds during Plan and Practice Reviews relate to boundary resolution and/or evidence errors. These errors occur in two basic forms:

1. The practitioner has not properly assessed the evidence tied in the vicinity of his/her survey, resulting in an incorrect resolution of boundaries; or
2. The practitioner has not tied sufficient evidence in the vicinity of his/her survey and consequently does not have complete information upon which to base a clear and unambiguous boundary resolution.

Thankfully, the number of faulty boundary resolutions we see are relatively few. However, where we find such occurrences, the main reason is that the practitioner has not fully examined or understood the boundary resolution shown on underlying plans. Given that boundary resolution is THE area of expertise in which land surveyors must excel, errors of this type are of great concern. Quality Assurance processes to address this issue should include:

- Complete research to ensure you have all relevant plans in the area of your survey;
- In depth analysis of the origin of each piece of evidence you use for your boundary resolution to ensure you clearly understand the history and rationale behind its location and the quality of the evidence;
- Ensure you adhere to the fundamental principles of the hierarchy of evidence and well established professional practices (e.g. proration, evidence of occupation, etc.) relating to the re-establishment of boundaries.
- Discuss your solution with other land surveyors. If you are a sole practitioner, this will obviously mean contacting someone outside your office.

With regards to item 2 above, the issues we discover are usually related to Board Advisories 98-1 and 2013-1. Members should be familiar with both of these documents and must apply the principles outlined in the Advisories to their surveys. Both Advisories speak to the necessity

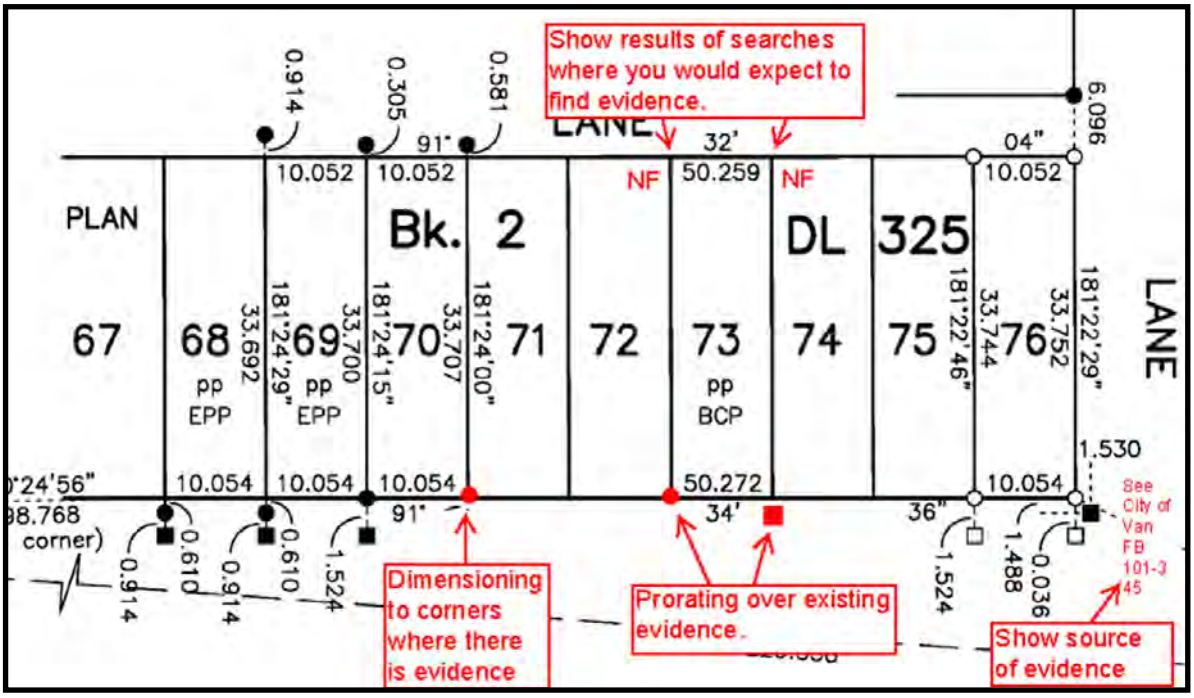
Continued on Page 22 ➢

Continued from Page 21

to tie all of the evidence in the vicinity of a survey and to consider all such evidence when doing your boundary resolution. The main distinction between this type of error and the boundary resolution errors discussed under item 1 above is that the boundary resolutions in item 2 are correct, but they are missing important pieces of evidence which are necessary to substantiate the resolution. The two most common instances of this are:

- Dimensioning to corners where evidence exists, but no evidence is shown on the plan; and
- Prorating when there is additional evidence along the boundary being prorated.

Both of these issues are illustrated in the diagram below. Evidence found in the field but not shown on the plan is in red.



This diagram also illustrates two other important items which are not plan defects, but are worth mentioning here for convenience. These are:

- The importance of indicating locations where you have searched for evidence and found none. PAD does not necessarily expect you to label each corner on the plan, but certainly at locations where you would expect to find evidence (e.g. where there is a recent subdivision, reference or posting plan) you are expected to note "NF" if no evidence is found.
- The importance and usefulness of showing the origin of evidence used in your survey. Here again, PAD would not expect you to do this for each corner, but where the origin of the evidence is obscure, this is particularly important information to place on your plan. Including the origin of evidence on your plan has the dual purpose of ensuring you have done your due diligence in researching and understanding the quality of the evidence you are using for your boundary resolution and it provides surveyors who use your plan in the future with valuable information.

Conclusion

Now that the most common plan quality issues have been discussed, the following is a suggestion as to what your final plan check print should look like:

All of the highlighted items have been checked:

- All bearings, dimensions and areas have been checked using an independent closure / mapcheck routine as discussed above - this includes all hanging lines;
- All dimensions have been checked with underlying plans;
- All evidence shown on the plan has been checked against documentation in your field notes and against underlying plans;
- UTM coordinates have been checked against MASCOT values or with the results of your GNSS processing data - you should also inverse between the coordinates on your plan to ensure the bearing and distance match those shown on your plan:

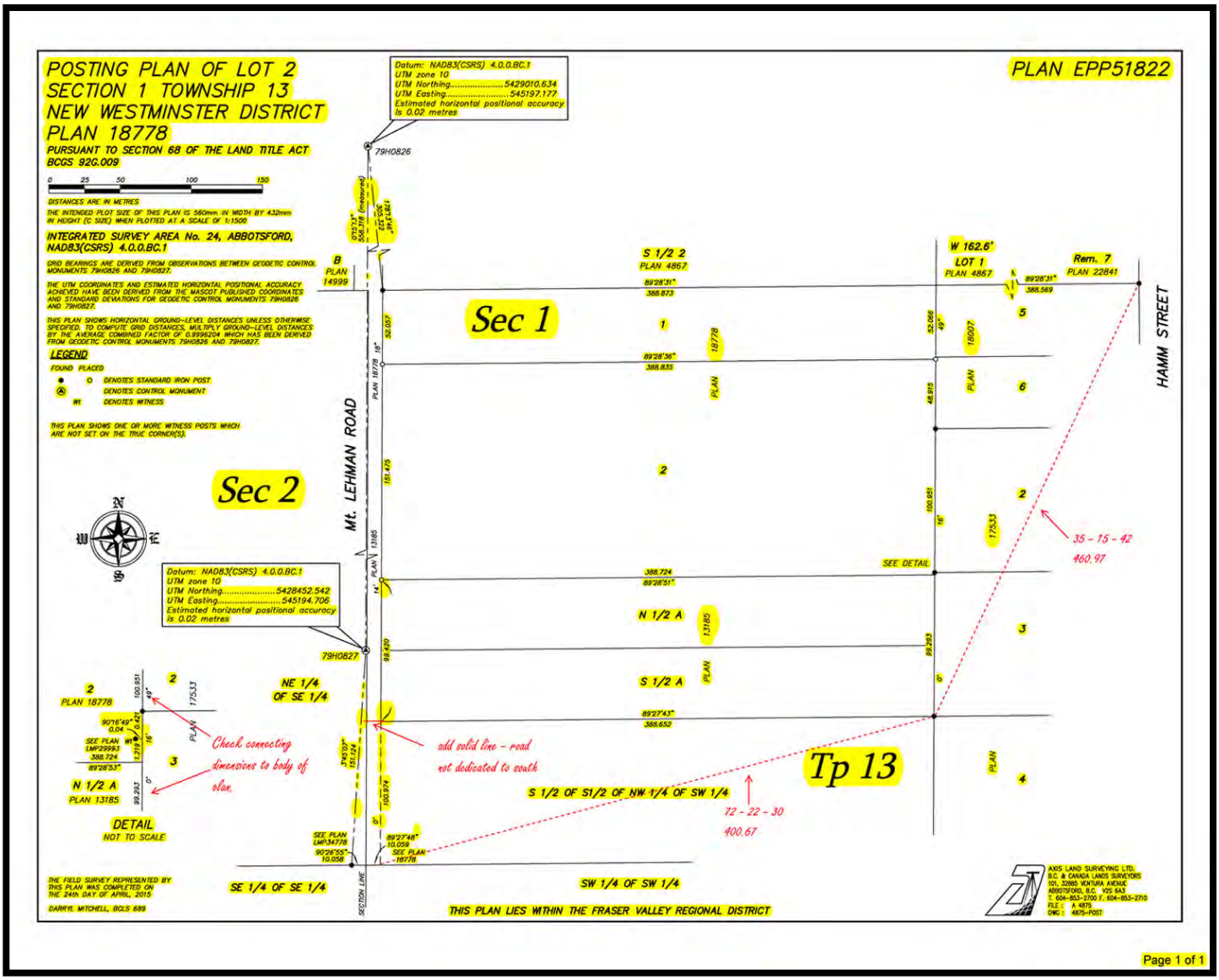
Continued on Page 23

Continued from Page 22

- All scenery has been checked against MyLTSA records;
- The plan title has been checked against the title of record in the LTSA;
- All symbols and plan statements have been checked for conformity with the GSIR;

If you do this for every plan you produce, you will avoid all unnecessary plan defects and deficiencies. A few final points to remember:

- Most plan deficiencies are preventable with proper checking procedure,
- Most plan/survey defects can be addressed through proper attention to field procedures and subsequent boundary resolution and plan preparation processes
- Our duty as professionals is to provide the highest possible quality input into the LTSA registries and to preserve and protect the cadastre.



Anecdote ... James Madison (1751–1836)

At the Constitutional Convention, Madison was one of the most active speakers, and many wise provisions owe their origin to his foresight and learning. Apt to get carried away when addressing the Convention, he asked a friend to sit by him and tweak his coattails if he seemed to be getting overexcited. After a particularly impassioned speech he sat down, almost exhausted, and reproached his friend for not pulling at his coat. "I would as soon have laid a finger on the lightning," said his friend.

The Public Interest

By Chad Rintoul, Chief Administrative Officer

All self-governing professions have an obligation to protect the public interest. In recent weeks we have seen what recourse provincial governments have when the public or government loses confidence in self-regulated professions.

In Quebec, the Order of Engineers lost its privilege to self-govern. The CBC news headline screamed "**Quebec doesn't trust engineers to regulate themselves** - Provincial government places Quebec's order of engineers under trusteeship."

In British Columbia, The Premier announced that the province's real-estate industry would be placed under government oversight, declaring that the industry's self-regulating body had failed to protect the public and has lost the public's confidence in its ability to police itself. The Globe and Mail headline read "**B.C. puts end to real estate self-regulation**".

It's happened before, and it will happen again. Professions lose privileges if they do not maintain the public trust. A professional association isn't a club looking out for the well-being of its members. If it is deemed to be doing so, it will cease to exist at great expense to the reputation of the profession.

It is the mission of the Association of British Columbia Land Surveyors to protect the public interest and the integrity of the survey systems in British Columbia by regulating and governing the practice of land surveying in the province. As an Association, we need to be ever mindful of the public interest and our rapport with stakeholders and government, and this is a constant challenge.

I believe that the ABCLS is a transparent and well respected professional body and that our members understand and appreciate the purpose and value of the Association. During my tenure, management and the Board have worked collaboratively on a number of strategies to ensure that we are putting the public interest first, and we can articulate our achievements.

A host of initiatives and programs are in place with an aim to protect the public interest. The Practice Advisory Department carries out plan and practice reviews. This touch point with survey plans and BCLS practices is a primary component of monitoring professional competency and providing ongoing interaction between the Association and professional land surveyors. Regular engagement with government and stakeholders is another vital responsibility which lies with the Association. Working with the External Relations Committee, management has a routine dialogue at the executive and working group level with a number of Ministries and our partners at the Land Title and Survey Authority. These open lines of communication are important to maintaining the confidence of government.

The current Strategic Plan has led to the implementation of a mandatory Continuing Professional Development Program, a public awareness initiative, and a review of the career entry and the complaint and discipline process which further illustrates our ongoing commitment to protecting the public interest. An upcoming Notice of Motion to members is expected to provide the Association with the latitude to appoint a public member to the Complaint Inquiry Committee. This appointment would be in addition to the public member currently sitting on the ABCLS Board.

In the current social and political climate, self-governing professions will be under the microscope - and that should be expected. The Association of BC Land Surveyors will continue to work hard to maintain the trust and respect of the public, our stakeholders and government, and it is critical that all British Columbia Land Surveyors continue to do the same in their daily practice.

Victor Borge told a friend that he could tell time by his piano. His friend was incredulous, so Borge volunteered to demonstrate.

He pounded out a crashing march. Immediately there came a banging on the wall and a shrill voice screamed, "Stop that noise. Don't you know it's 1:30 in the morning?"

North American Land Surveyors Canoe Team Reunion

By Robert Allen, BCLS (Life Member), CLS, CIG (Life Member)

From the first of June to the middle of July in 2011, the North American Land Surveyors Canoe Team participated in the David Thompson Columbia Brigade and a number of articles were written about the Brigade in previous editions of *The Link*.

This year marks the 5th year since the Brigade and North American Land Surveyors Canoe Team held a reunion in Thompson Falls, Montana. There is no place more 'David Thompson' than Thompson Falls so that seemed like the logical place to hold the reunion. Thompson Falls itself was named after David Thompson as was the Thompson River, Thompson Pass, Thompson Lakes, and Koo Koo Sint Ridge. Of the original 50 or so team members from 2011, 20 of us descended upon Thompson Falls between June 28th and July 3rd. Some team members showed up in cars, on motorcycles, and cars towing the 25 foot north canoes on trailers. We celebrated Canada Day in near record heat (36° C) with a 32 km paddle down the Clark Fork River from Thompson Falls to Trout Creek. The following day, July 2nd, we participated in their David Thompson Days parade. We had three canoes being towed on trailers and we also walked along the parade route. That afternoon, we again offered the popular "People in Boats" program where we gave the locals an opportunity for a 15 to 20 minute paddle in the canoes with two of our experienced paddlers.

We were treated to a lunch and a picnic supper in the park on Saturday, July 2nd. On July 3rd we all headed in different directions. Some were heading back to eastern Oregon, eastern Washington, north western Washington, south eastern and south western British Columbia, central and northern Alberta, and even as far away as Wisconsin and Hawaii. All agreed it was a wonderful time and everyone thoroughly enjoyed themselves and it looks like the next reunion might be in two years time in Wenatchee, WA.

The hospitality in Thompson Falls was second to none and it was good to see some of the local people we got to know in 2011. Thompson Falls is a small community located on the Clark Fork River south east of Lake Pend Oreille. David Thompson chose that location for his trading post, Saleesh House, in 1808 and there is a lot of history in the area. If you ever get a chance to travel that way, please consider stopping there. If you want to read more about David Thompson and especially Saleesh House, you should read the book *Sometimes Only Horse to Eat* by Thompson Falls author and historian, Carl Haywood.

Paddle Down the Clark Fork River.

Paddling past the 'Blue Slide' mentioned in David Thompson's journal.

Three geocachers paddled out to Steamboat Island for a geocache ... Robert Allen (Sechelt, BC), Dwaine Ronnie (Slave Lake, AB), and Stan Mrzygod (Spokane, WA). John Armstrong (Cranbrook, BC) paddled with us and took the photo.

2016 McVittie House and Land Surveying Office Work Party

By Robert Allen, BCLS (Life Member), CLS, CIG (Life Member)

After our North American Land Surveyors Canoe Team reunion in Thompson Falls, some of us travelled north to Cranbrook on July 3rd, 2016 to put in some time at McVittie House and Land Surveying Office at Fort Steele. The project this year was to install some gutters on three roof edges such that the gutters looked like they were made in about 1900. While we used new wood, we are confident that the weather will fade them quickly. We only had 2 1/2 days there but we did manage to get four gutters installed.

Bill Chapman, BCLS, flew in from Vancouver on the night of July 3rd and I picked him up at the Cranbrook Airport. John Armstrong, BCLS, took a different route back to Cranbrook than I did as he wanted to look at some antique stores on the way. He also bought some slot type screws in Thompson Falls as they are near impossible to find in Cranbrook. Most screws now, at least in Canada, use the Robertson head. In the 'US of A', they still insist on using the Phillips head. However, in order for us to have everything look like it was from about 1900, we had to use slot head screws - the bane of my existence for sure. Jim Halliday, ALS, went up the same route I did on his motorcycle, but at a different time. Ian Emmerson, ALS, rode his motorcycle as well, but had to make a detour through Vancouver - a BIG detour, but he was back to help us. Mary McDowell, Washington State LS, took an even different route up to Cranbrook. Mike Rogers, LST, from Cranbrook, also joined us for a day. We had to make some wooden brackets to hold up the gutters and nearly every one was different. We then fabricated the gutters and hung them in place. We tried them out by pouring some water in them, and surprise, they worked!

While we were there, a number of folks toured through the House and Office and Bill was our official tour guide. He has the routine down pat. One of the people who did the tour wrote to the Association Office and said the following:

I am always pleased to see new restorations and projects at Fort Steele. Earlier this spring, I visited the McVittie House and Land Surveying Office, and was quite impressed by the restorations done. Yesterday, I visited again, and this time was fortunate to be there when some of your members were doing further work to the house. One of your members gave us a very informative guided tour of the buildings - it was very interesting to learn not only the history of the McVitties and their home, but also about the extensive restoration process that the BC Land surveyors have undertaken. I just wanted to say thank you - your efforts and dedication are appreciated!

Those comments make it all very worthwhile for those of us working on the project and it makes us feel better about spending some of the Historical and Biographical Committee budgeted monies.

By noon on Wednesday, the 6th, we packed it in. Jim and Ian rode back to Cochrane and Calgary, respectively and Mary stayed in Cranbrook to visit family and Bill and I drove back to Vancouver getting in about 9:00 pm that night. John was left to finish the clean-up and to admire our handiwork. Thanks to all those that helped out those couple of days and especially to John Armstrong for gathering all the materials ahead of time and for having all his power tools available for us to use.

Setting up our work area: John Armstrong and Jim Halliday

John Armstrong and Bill Chapman at the sign in front of McVittie House and Land Surveying Office

Ian Emmerson and Mary McDowell on the ladders and John Armstrong (planning)

D W Technologies Ltd.

SHOP ONLINE with CONVENIENCE: DWTECH.CA

Wide Format Paper

20# 36″ x 500′, 3″ core: $68.25 per 2 rolls
20# 24″ x 500′, 3″ core: $57.75 per 2 rolls
20# 36″ x 300′, 2″ core: $72 per 2 rolls
20# 36″ x 150′, 2″ core: $89.25 per 4 rolls
20# 24″ x 150′, 2″ core: $72 per 4 rolls
24# 22” x 150’, 2”core: $115 per 4 rolls
24# 34” x 150’, 2”core: $140 per 4 rolls

Marking Paint
Available colours: Clear, Black, White, Red, Orange, Green, Yellow, Blue, Pink: $5.95 per can

Survey Laths

36” unpainted: $33 per 48
24” painted: $28.95 per 50
24” unpainted: $26.95 per 50

D W Technologies Ltd. est. 1996
Field & Office Productivity
#103-2323 Boundary Road
Vancouver, B.C., Canada
V5M 4V8
(604) 205 6928
info@dwtech.ca dwtech.ca
Survey**Site**.ca
wide-format-paper.ca

You've Got Options

At MicroSurvey we take care of our customers. After 35 years we've developed the tools and services you need to efficiently run your business. Explore your options, let us show you how we're different. **Contact us today and mention this ad for instant savings.**

Software Spending

Take charge of your software spending with MicroSurvey's perpetual software licenses.

Buy with Confidence

Get the help and upgrades you need to perform at your best with our affordable after sales support plans.

Become an Expert

Improve proficiency by participating in one of MicroSurvey's online training courses.

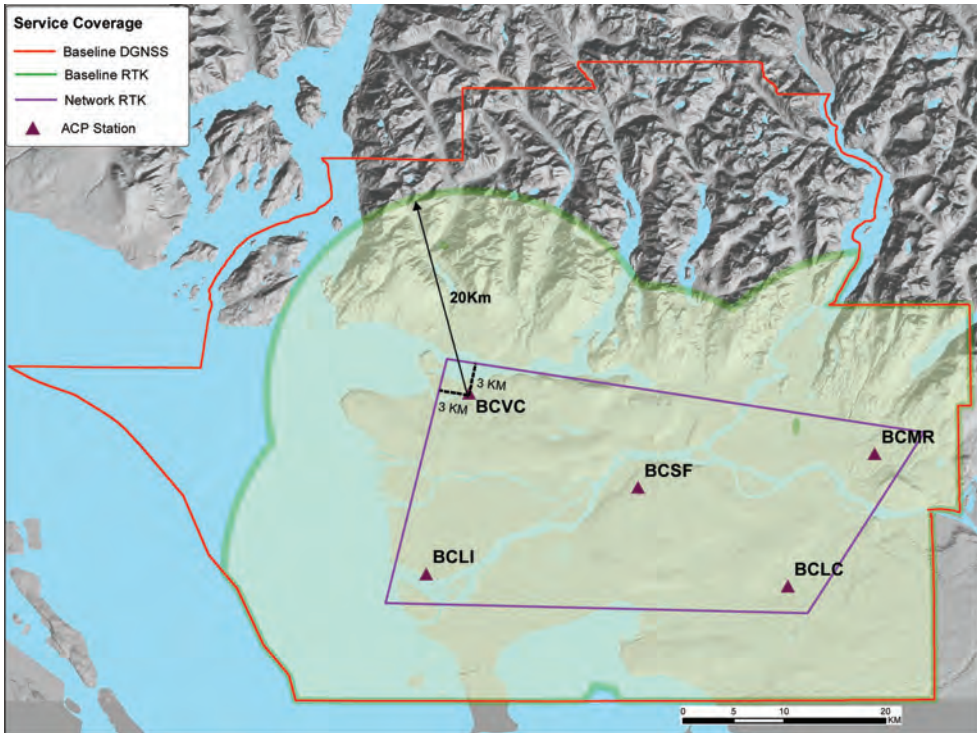
PART OF HEXAGON

MicroSurvey®

www.MicroSurvey.com

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS) SERVICE

THE MODERNIZED METRO VANCOUVER **GNSS** SERVICE NOW OFFERS **GPS** AND **GLONASS** REAL-TIME CORRECTION SERVICES



BC Land Surveyors using these integrated ACPs will comply with the General Survey Instruction Rules (GSIR), as established by the Association of BC Land Surveyors (ABCLS), for georeferencing or integrating legal surveys within the region.

GNSS service area coverage
(Note: the ability to access the system is subject to the availability of wireless coverage)

ACCURATE • INTEGRATED • ALWAYS ON

FOR MORE INFORMATION

Metro Vancouver Information Centre:
604-432-6200
(Monday to Friday from 8:00 am to 4:30 pm)

Email:
gnss_subscription@metrovancouver.org

VISIT US ONLINE

For more information related to this regional geospatial infrastructure, please go to
www.metrovancouver.org/gnss

metrovancouver
SERVICES AND SOLUTIONS FOR **A LIVABLE REGION**

spatial TECHNOLOGIES

Vancouver:
P: 604.214.9453
F: 604.214.9455
TF: 1.877.252.0070

Calgary:
P: 403.252.0070
F: 403.259.3992
TF: 1.877.252.0070

Edmonton:
P: 780.486.2111
F: 780.486.2155
TF: 1.877.252.0070

www.spatialtechnologies.ca

A new experience in measuring technology!

Leica Nova MS60

The world's first self-learning MultiStation

The MS60 automatically adjusts to any environment, regardless of the challenges. To meet the demands of our ever-changing and increasingly-quicker world, Leica has developed the world's first MultiStation, combining all available measurement technologies in one superior instrument. Scanning with the Leica Nova MS60 has been made simpler through the instant creation of point clouds with overlaid measured points and 3D models in one view. Visualisations are clearer and easier to see on an all-new 5" screen.

Leica Nova GS16

Leica's new GS16 - The world's smartest GNSS receiver

Enjoy uninterrupted accurate positioning even when your local correction service is unavailable due to obstructions or lack of cellular coverage with the global SmartLink service. Even when no reference data is available, work fully remotely with SmartLink.

No base, no problem!

- Work without a base with SmartLink corrections for RTK Everywhere! (conditions apply)
- 555 channel Future ready to track all available signals

when it has to be right

Leica Geosystems

Be Captivated

Captivate

spatial TECHNOLOGIES

Vancouver:
P: 604.214.9453
F: 604.214.9455
TF: 1.877.252.0070

Calgary:
P: 403.252.0070
F: 403.259.3992
TF: 1.877.252.0070

Edmonton:
P: 780.486.2111
F: 780.486.2155
TF: 1.877.252.0070

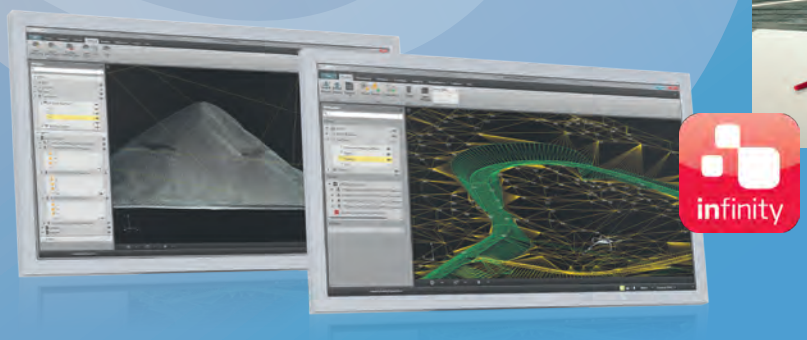
www.spatialtechnologies.ca

Simplify your workflow!

The new Leica CS35 tablet and Leica CS20 controller now give you the complete control of your entire office on the go.

The bridge between field and office

Leica Infinity – the intuitive office software solution
Surveying also means the ability to handle information and data from the field and office in a flexible way and – as far as possible – from anywhere with fast accessibility and seamless data transfer. Today and more than ever before, you also need to rely on a seamless workflow in all your projects. To fulfil this need, we have developed Leica Infinity: a user-friendly, intelligent software platform with intelligent information architecture that opens up previously unimagined possibilities within many aspects of your workflow. More efficiency, greater transparency and simply better.



when it has to be **right**

Leica Geosystems

Contact

Serge Beaudry, MBA, CFA
Portfolio Manager

Direct
250-861-8189

Toll Free
1-800-788-5677

sbeaudry@odlumbrown.com
odlumbrown.com/sbeaudry

May I help?

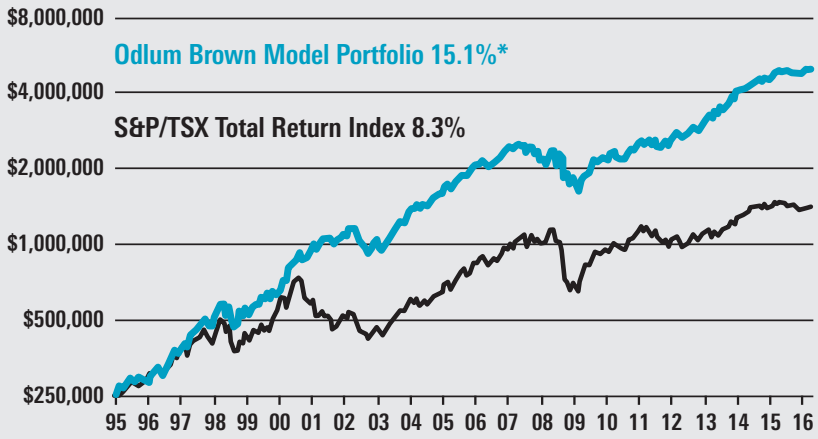
Focused on the Long Term

It takes a lifetime to build your wealth for your retirement. Let me help you protect it for the long term. Odlum Brown Limited is an independent, full-service investment firm providing disciplined investment advice and objective, value-based research with a singular focus on clients. For over 90 years, we have guided generations of investors in achieving their investment goals.

Patience and Discipline Pays Off

The success of the Odlum Brown Model Portfolio illustrates the value of a long-term, disciplined approach to investing.

Odlum Brown Model Portfolio vs S&P/TSX Total Return Index



Compound Annual Returns (Including reinvested dividends, as of June 15, 2016) [1]

	YTD	1 YEAR	3 YEAR	5 YEAR	10 YEAR	20 YEAR	INCEPTION [2]
Odlum Brown Model Portfolio [3]	-1.0%	2.1%	15.4%	15.2%	9.6%	14.9%	15.1%
S&P/TSX Total Return Index	8.5%	-2.6%	7.7%	4.5%	5.2%	7.7%	8.3%
S&P 500 Total Return Index ($CDN)	-4.2%	6.7%	19.9%	19.2%	9.0%	7.5%	9.0%

[1] Except for YTD period.

Contact me today at 250-861-8189 so that I may help you achieve your investment goals.

ODLUM BROWN
Investing for Generations®

CANADA'S BEST MANAGED COMPANIES Platinum member

[1] Except for YTD Period. [2] December 15, 1994. [3] The Odlum Brown Model Portfolio was established by the Research Department in December 1994, with a hypothetical investment of $250,000. Trades are made using the closing price on the day a change is announced. These are gross figures before fees. Past performance is not indicative of future performance. *Compound annual returns are from inception December 15, 1994 to June 15, 2016. Member-Canadian Investor Protection Fund

Broad coverage, cost-effective insurance for BC land surveyors.

Arthur J. Gallagher Canada Limited, formerly The CG&B Group, operates in every province providing insurance products designed specifically for the surveying profession.

encon

Specialized claim service for surveyors: local, professional, timely and fair.

PROFESSIONAL SURVEYORS CANADA
GÉOMÈTRES PROFESSIONNELS DU CANADA

For more information about the PSC program for ABCLS members contact:

Mark Sampson BBA, FCIP
Senior Vice President
800.267.6670 ext. **2631**
mark_sampson@ajg.com

Surveyors'Plan

Professional Liability • Insurance Protection for Retirement
UAV Insurance • Business Coverage

CanCADD
IMAGING SOLUTIONS

120 - 1715 DICKSON AVENUE, KELOWNA BC V1Y 9G6
250 860 3425 / 1 800 605 3355 / SALES@CANCADD.CA / WWW.CANCADD.CA

DesignJet Sales and Service

HP Gold Partner

ACROSS ALL OF BC!

DESIGNJET T2530PS MULTI-FUNCTION PRINTER

PRINT

COPY

SCAN

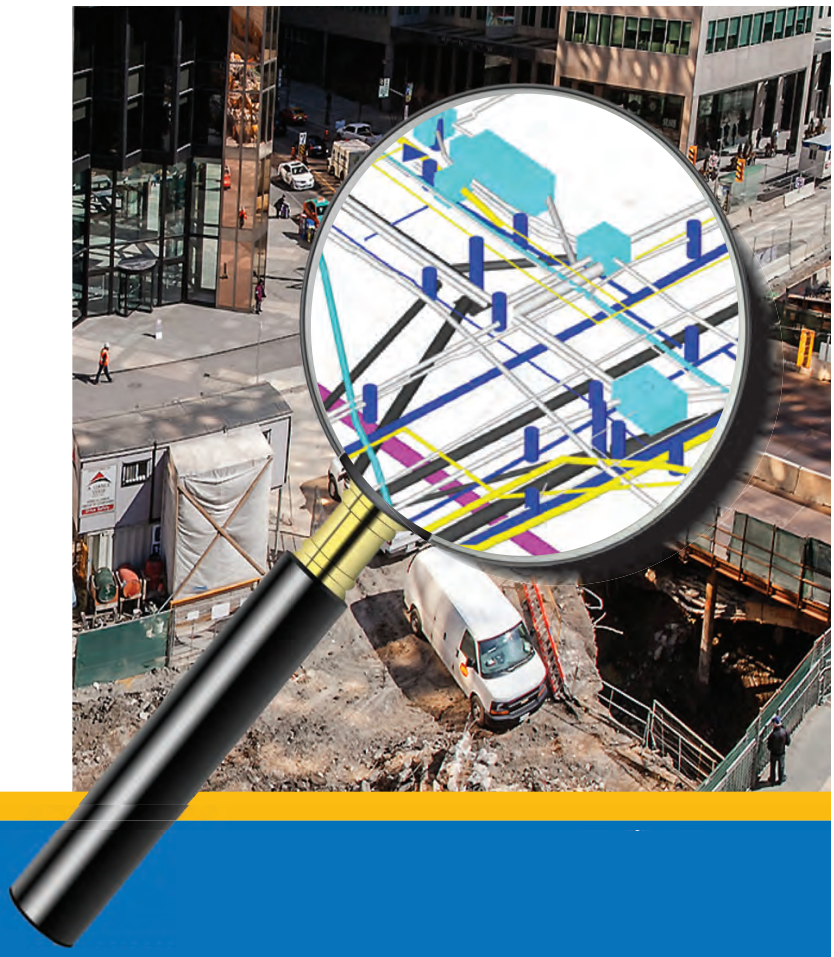
DESIGNJET T830 MULTI-FUNCTION PRINTER

Proud to support British Columbia Land Surveyors

T2 utility engineers

FOCUSED

ON YOUR UTILITY SOLUTIONS



your source for

subsurface utility engineering services

- Utility Mapping
- Ground Penetrating Radar

T2 Utility Engineers

T: 1-855-222-T2UE | E:info@t2ue.com | www.t2ue.com

OIP Group Luncheon and Presentation

By Wayne Griffith, BCLS, CLS, Retired, Secretary OIP Group

Last September the OIP Group paid a visit to the BC Farm Museum. The Museum was showing a survey exhibition called Hard Lines: Surveying Early British Columbia. A salute to the work of the early land surveyors of BC and the instruments they used.

This first class survey display came about through the creative efforts of a petite, retired librarian named Hilary Ruffini and her volunteer staff at the Museum. Hilary designed and created the write ups for the various survey panels. Through her efforts Hilary has given the survey profession the type of public exposure that money can't buy or that a public relations committee could never provide. Because of her creative work, Hilary was nominated for an ABCLS Certificate of Appreciation. On Monday, May 9th, 2016 the OIP Group returned to the Museum to see Hilary presented with her well-deserved award.

There were 16 land surveyors in attendance and five special guests. Those surveyors present were Robert Allen, John Nash, Henry Aldridge, Chris James, Don Black, Ralph Turner, Chuck Salmon, George Fenning, Bill Chapman, Martin Schulze, Stan Nickel, Don Watson, George Robertson, Jeff Beddoes, Dai Yates and Wayne Griffith.

Our special guests included Denny DeMeyer and his wife Delores, representing Washington State Land Surveyors. Floss Thomson, mother of the present Surveyor General, Mike Thomson, was present along with Jay Sherwood and Jane Watt. Jane is the first vice president of the BC Historical Federation and is also the magazine liaison and book review editor for British Columbia History. Jay Sherwood is an author of seven BC history books including several on surveying.

The Association of BC Land Surveyors was represented by Secretary, Chuck Salmon and the Surveyor General's office was represented by Jeff Beddoes, Senior Deputy Surveyor General. Our Surveyor General could not make the luncheon as he was away in Panama City on assignment.

Members and guests started gathering at the BC Farm Museum around 10 am. Most of the group and guests spent the first hour getting acquainted and revisiting the survey exhibition. The presentation began around 11am with Robert Allen introducing our special guests and having Hilary Ruffini escorted to the presentation area by Wayne Griffith and Bill Chapman. Chuck Salmon and Jeff Beddoes were then officially introduced with Jeff presenting a brief history of early surveys in the lower mainland. Following Jeff's brief history presentation, Chuck had a few kind words to say about Hilary before presenting her with the Certificate of Appreciation.

With the presentation complete, it was time to treat Hilary to some lunch. We made our way over to the Fort Pub and Grill. There were 21 of us for lunch and the staff of the Fort Pub and Grill did a great job in looking after us. After some fine food and a lot of scintillating conversation we started to make our way home around 1:30 pm after a very successful day.

The following day I sent Hilary some photos of the presentation and she responded with the following note that pretty well express her feelings toward the day's activities.

"Dear Wayne:

Thank you so much for the photographs - what a wonderful memento for me personally and for the Farm Museum. The Certificate of Appreciation is an award I don't really feel I deserve, but, my goodness, I'm deeply pleased and honoured to be presented with it!

I will be writing to Bob to thank him for his "little surprises". What an honour for us to meet Chuck Salmon and Jeff Beddoes and for him to arrange for Jay and Jane to attend too. It was far more than I expected. It was great to see everyone again and for me to listen to some more of the memories you all share.

It occurred to me that this display is rather like our farm museum. Back in the 50's when technology was rapidly changing the face of agriculture, people realized how much history would disappear if the old equipment was lost - as it would have been. Falling to scale and dust in a field or barn and with it would go the stories of that time. Someone made the decision not to let that happen - to provide a place where the equipment and tools could be preserved. Our volunteers carry on with that preservation and restoration with great devotion.

Bob and the Historical and Biographical committee have done a great job of preserving the biographies and stories in the books and articles that have been written about the history of the early surveyors, as well as Jay's immensely fascinating books. I'm glad that this display can bring a little bit of that story to the general public and show off the

Continued on Page 37 ➢

Continued from Page 36

instruments and tools of the true pioneering pathfinders and mapmakers of British Columbia.

Thank you again for all your kind words, for a delicious lunch at the Fort Pub in good company and YES - the promised scintillating conversation. I sat with Jeff Beddoes and we swapped climbing stories which took me back forty years!

Regards and warm wishes to all of the OIP group, and please keep in touch! ... Hilary"

Hilary is one deserving lady and it was a pleasure to see her rewarded in such a manner. The OIP Group wish her well in future endeavours and thank the volunteer staff of the museum for their efforts in hosting this presentation and in promoting the survey profession through a first class display.

Jeff Beddoes and Hilary Ruffini

Chuck Salmon and Hilary Ruffini ... following the Presentation

A special guest ... Floss Thomson with Don Black

Robert Allen introducing Hilary Ruffini and our special guests

Paul Hatch ... BCLS #960

Paul Hatch was commissioned on May 16th, 2016 in Nanaimo by Chuck Salmon. He was born in Grand Bank, NL and grew up in Burin, NL. Paul chose to become a land surveyor as he enjoys math and the outdoors. When he was trying to figure out what to do after high school his grandfather influenced him to take geomatics courses at COGS. Paul has been a commissioned Alberta Land Surveyor since 2008. He would like to thank Ian Zaharko and Mike Hansen and well as his wife Lesley for all her support. Outside of surveying, Paul enjoys golf, softball, camping, woodworking, fishing and working with his dog in agility.

Ron Johns, Paul Hatch, Chuck Salmon and Bronwyn Denton

Simone Porcellato ... BCLS #961

Sim was commissioned on June 13th, 2016 in Lake Country by Bronwyn Denton. He was born in Guelph ON and moved to BC when he was 20 years old. Sim feels fortunate that he has lived in some of the most beautiful places in BC such as Whistler, Victoria, Vancouver, Nelson and Kelowna. He chose to become a land surveyor because he wanted a challenging career that would differ from day to day while allowing opportunities for growth and professional development. Sim would like to thank everyone he has worked with as they have all taught him something in some way or another. In particular he would like to thank Glen Mitchell in Victoria who gave him his first job in land surveying and showed him what a great career surveying can be. He would especially like to thank Mark Cahill for taking him on as an articling student. Sim greatly appreciates that Mark had the faith in his ability and the patience to teach, guide and help him get to this important milestone in his career. In his personal life, it is his wife Lisa and his two children Jack and Paige, who have been there to cheer him on and support him through this whole experience. When Sim is not surveying he enjoys hanging out with his family, snowboarding, mountain biking, hiking and playing squash.

Bronwyn Denton and Sim Porcellato

Continued on Page 39 ➢

Continued from Page 38

Mitch Laseur ... BCLS #962

Mitch was commissioned on June 16th, 2016 by Chuck Salmon in Victoria. He was born in Vancouver and grew up in Hope, BC. Mitch chose to become a land surveyor for his interest in development, calculation and diverse physically demanding work. He would like to thank Bronwyn Denton, Rory O'Connell, Roger Parry and the WSP team for guiding him and providing their support; Richard Redfern, Ian Hughes and Ron Johns for always being available to share their advice: Joe Johnson, Brian Sansom and Greg Browne for helping him find his way into the profession in the beautiful Shuswap; his partner Natasha and son Hudson for bringing him lunches and waiting patiently for his arrival home from work; and all his friends and family for their love and encouragement - he truly could not have done this without all these people. When Mitch is not working he enjoys hockey, baseball, playing guitar, singing and travelling.

Chuck Salmon and Mitch Laseur

Mitch Laseur having fun!!

Michael Vail ... BCLS #963

Mike was commissioned on June 17th 2016, in Whistler BC by Brian O. Brown. He was born and raised in Fredericton NB. Mike chose to become a land surveyor as he was promised early mornings and endless mosquitoes - a promise kept! He chose to live in British Columbia because it really is the best place on earth. Mike would like to thank his family (especially his mother), Brian Brown, Trevor Burton, John Lunn and the #1 all-time chainman Michael Payne for so much help and guidance. Mike spends his free time in the great outdoors sucking back the fresh air and soaking up the sunshine enjoying skiing, surfing, hiking, camping and fishing to name just a few.

Michael Vail and Brian Brown

Michael extremely excited after finding a 1922 wooden post in a stone mound.

Continued on Page 40

Continued from Page 39

Anna Niraz ... BCLS #964

Anna was commissioned on June 20th, 2016 in Fort St. John by Chuck Salmon. She was born and raised in Poland. Anna chose land surveying because she liked mathematics and studied survey engineering. Her previous work was always related to the field of surveying so pursuing a land surveying career was a logical step. Anna would like to thank Jim Sutherland, Dave Golsing and Katie Hannah for professional guidance and support. For encouragement, discipline and structure in study she would like to thank Veronica Meister and Anna's work colleagues at the WSP Surveys office in Fort St. John: notably Andrew Moody and Emanuel Lys who received their commission at the same time. She also expresses gratitude to her husband Jerzy Janusz and son Aleksander Janusz for their help, patience and support. Anna has lived and worked in Poland, the Middle East and Canada. She feels the constant change and assimilation of values, learned from different cultures and individual people, is her motto of perpetual, enriching and lifelong learning. When Anna is not surveying she likes the simple relaxing activities of reading, hiking, travel and taking up numerous hobbies that she feels she can never reach the level of proficiency - in recent years golfing, skiing and quilting.

Chuck Salmon and Anna Niraz

Anna Niraz Helicopter Scouting

Andrew Moody ... BCLS #965

Andrew Moody was commissioned on June 20th, 2016 by Chuck Salmon in Fort St. John, BC. He was born and raised in Fort St. John. Andrew initially became a land surveyor because of his interest in working outdoors and exploring new areas. His passion for the work spiked when he realized the diversity of the work and the new challenges that can arise daily. Andrew would like to thank his wife Angela, and the rest of his family for always being so supportive. It has been a long road and without them by his side this would not have been possible. He also has the privilege of working with an outstanding group of individuals at WSP; they have been a great source of support and for that, he thanks them. Lastly, but not least, he would like to thank the many members of the Association that have shared their extensive knowledge with him and for providing some much appreciated guidance along the way. Outside of surveying, Andrew enjoys golfing, snowboarding, snowmobiling and dirt biking.

Chuck Salmon and Andrew Moody

Continued on Page 41

Continued from Page 40

Emanuel Lys ... BCLS #966

Emanuel Lys was commissioned on June 20th, 2016 in Fort St. John by Chuck Salmon. He was born and raised in Calgary AB. His land surveying career started nine years ago when he found out there was a branch of engineering that would get him outdoors and he jumped on it with little knowledge of the profession. The variety in challenges and terrain he has seen since has kept him interested in pursuing his BCLS. Emanuel would like to thank all those who supported him along the way including his parents, siblings, university friends, training friends and colleagues both in and out of the office. Emanuel loves the outdoors and knows that he is not the only land surveyor to say this. Above anything else his biggest joy is being in the mountains; from biking, skiing, hiking, sledding, swimming, to simply sitting enjoying the view - there is no place he would rather be.

Chuck Salmon and Emanuel Lys

Emanuel on a hike up Battleship Mountain ... overlooking Carbon Lake.

Veronica Meister ... BCLS #967

Veronica was commissioned on June 23rd, 2016 in Williams Lake by Chuck Salmon. She was born and raised in Williams Lake. The reason Veronica chose land surveying as a career is that she was interested in land development and historical research. She was also attracted to the diverse variety of projects, where no two days are the same, and the opportunity to work both in the office and in the field - from suits to boots. Veronica would like to thank her mentors Doug Dodge and Bryan Bates as well as Monty, Shonnean and Nicole (Exton and Dodge staff). Additional thanks to the many land surveyors who offered guidance and support along the way. When Veronica is not surveying she enjoys dirt biking, snowmobiling, classical piano, yoga, shed hunting and volunteering with shelter animals.

Don Goodrich, Chuck Salmon, Veronica Meister, Doug Dodge and Nigel Hemingway

The CIC on Posting Plan Timelines

The Complaint Inquiry Committee (CIC) has seen a recent uptake in the number of complaints related to overdue posting plans pursuant to Section 68 of the *Land Title Act*. While the number of complaints received to date has been relatively small, there is potential for further complaints. With that in mind, the CIC brings to light the issue around Section 68 posting plan timelines with the goal of educating the membership on the requirements under this Act. The CIC is required to investigate all complaints received, and our discipline process dictates that if evidence is found of a violation of any statute then the matter must be referred to the Board for consideration as a case of unprofessional conduct. Complaints of this nature tend to be very straightforward to investigate since the evidence points to a BCLS either complying or not complying with the statute. This rather inflexible approach fits with the public expectation that self-governing organizations uphold the standards of their profession.

Section 68 of the *Land Title Act* is clear: within two months of defining or redefining a boundary on the ground, a posting plan must be filed by the BCLS at the land title office**. It is important to note that the two month timeline begins when the boundary is marked on the ground**, not when the completed checklist for the plan is filed into the Electronic Checklist Registry or some other milestone.

Responsibility for complying with the Act lies with the individual practitioner. The *Land Title Act* does not contain provisions for tracking posting plans on behalf of practitioners and it would be impractical to do so; the Land Title Office does not learn about the definition or re-definition of a boundary until a posting plan has been submitted. Section 68 states a BCLS must make and file a posting plan, therefore compliance is solely the responsibility of the BCLS.

A number of these recent complaints have been brought forward through the Practice Advisory Panel's systematic review of BCLS's practices. Their approach has been to raise a complaint when a repeated pattern of overdue posting plans is not changing due to their educational interventions. Rather than allowing a contravention of an act to continue, the Practice Advisory Panel brings forward a complaint.

Members can help ensure their compliance with the *Land Title Act* in two key ways. First, a BCLS must be aware of their obligation to file the posting plan within the required timeline, and knowing when that timeline starts and ends. Second, a BCLS should have a system in place within their practice to track posting plans with the objective of ensuring a plan is filed on time at the land title office. A systematic approach will help members know their state of compliance with the Act at any given time.

The CIC hopes this information will reinforce the importance of posting plan timelines with the membership, with the goal of reducing the potential for complaints and improving the registered cadastral records for all members.

Professional Liability Insurance Committee

By Michael Kidston, BCLS, CLS

I have been on the Professional Liability Insurance Committee (PLIC) for just over one year, so I am still feeling my way into the work that the committee does. One of the duties is to look at open claims and advise the insurer and the adjuster if there are any survey-related issues that may not be apparent to a lay person. We also review all new claims being made and reported to the insurer, which gives us data on what issues are causing claims, which may vary depending on economic factors or vary by region.

One of the features of the PSC Professional Liability Insurance program is the coverage for past actions, including insurance on all of your firm's past services when you retire. This retirement coverage is not offered by most other insurers, and should be seriously considered when assessing your options. A claim was recently made involving a retired land surveyor and an alleged error from 1969. This claim was denied (against a currently active firm, for whom the retired land surveyor had started working 33 years after the alleged error occurred). However, if the retired land surveyor had shown succession from his old firm to subsequent firms the insurance would have been valid. In this case the plaintiff was probably just "fishing".

When reading through the details of the active claims, I am dismayed by the length of time that some can drag on and the ever escalating cost associated with what started as a fairly simple claim. Plaintiffs let the action stagnate, then move one step ahead when the defendant files to dismiss. Or they change lawyers after several years and start the process

Continued on Page 44 ➢

Continued from Page 43

all over again. These are not your "golden years" if you are defending yourself against a 30 year-old claim for the next five years.

Another aspect of PLI that becomes apparent is that the minimum coverages that are required in order to practice are not sufficient to defend many of the claims that we study. Another active claim involves a survey boundary disagreement that required a full-scale trial to rule as to which professional opinion was the correct solution (or at least the legal solution). Landowner 'A' had made claim against Surveyor 'X', and defending this claim (unsuccessfully) exhausted the firm's full policy limits for one claim. Now Landowner 'B' is suing Surveyor 'X' over the same boundary, and there is no coverage left. The above situation also brings the question: can Surveyor 'X' continue to practise for the remainder of the insurance policy year if the overall policy limits have been eroded or are being held in reserve for an on-going claim?

The above scenarios make for interesting reading, but I doubt anybody wishes to see their name as Surveyor 'X'. The purpose of this article is to give land surveyors a few moments to think about Professional Liability Insurance - it is there to cover the public if they have a reason to claim for errors in surveys and also to protect the land surveyors from potentially ruinous litigation. Are you covered?

Continuing Professional Development Committee Update

By Reid Egger, BCLS, ALS, CLS

As I sit down to write this article, I realize that late June isn't the most natural time of year to be thinking about learning something new, even for a self-confessed professional development junkie like me. However, by the time this gets published, some deeply imbedded habits and some not so subliminal "back to school" advertising will have some of us thinking about what we could do to make us better surveyors and business people.

I have been involved in creating rigourous continuous professional development programs for three Associations. I can proudly say that, in my opinion, the program developed in BC is the best I have seen across the country. I have heard the argument that there is little statistical correlation between the amount of CPD that a professional takes and their performance on peer review. However, I think that collectively, we intuitively believe that professional development does make us better at doing our jobs. Otherwise, during the CPD days of the AGM, the ski slopes and golf greens would be full of surveyors and the seminar rooms would be empty. One of the key elements of the ABCLS MCPD program is self-assessment. This helps members plan their own professional development, making it relevant and focused and hopefully change the above mentioned statistic.

There are many challenges for BC land surveyors to acquire meaningful professional development. Time and costs constrains our opportunities; sometimes the two conflicting with each other. As well we are a geographically diverse profession. When I look at the members listings, there are registered members in every corner of the province, and from Nova Scotia and Whitehorse (I apologize if I missed anyone further away than that, it was just a quick scan through the list). On top of that, the nature of surveying in BC has created regionalized scopes of practice. All of this makes it impossible to find a "one size fits all" model for CPD opportunities.

There are a number of traditional sources of CPD opportunities, the CPD days at the AGM, regional meetings, periodic travelling seminars such as GIRBC, local educational institutions etc. In addition to this, is GeoEd, an organization created by land surveyors across the country specifically for land surveyors, providing distance learning opportunities in a wide variety of topics. The ABCLS is a Registered Provider with GeoEd and a leading contributor to its content. The webinar series "An Exploration of Websites Useful to the BC Land Surveyor and other Land Related Professionals" commissioned by the ABCLS and produced by Brent Taylor, BCLS is an excellent example. Brent, as a Registered Provider himself, has also prepared a webinar on Strata Surveys, available on GeoEd. The ACLS, NRCan, the AOLS, AOGQ and URISA, and 4 Points Learning are also important contributors to the portal.

Some courses are in "real time" but are often recorded for "post-processing". Many are short and cheap, only taking an hour of your time and costing $50 or less. Some can help you with areas of practice that you think you need to brush up on or areas that you may want to develop your practice in. There may also be courses of interest to technical staff and aspiring land surveyors within your organization. There are also a number of webinars for those interested

Continued on Page 45

Continued from Page 44

in improving their skill set in working with First Nations. The list of webinars is growing every month. The portal is easy to access and most courses can be completed on your schedule in the comfort of your home or office. Courses taken on GeoEd can be credited to your mandatory CPD hours. I encourage all members of the ABCLS to check out the website at www.geoed.ca and see what courses are for you.

The Art and Science of Estimating

Do you struggle in providing accurate estimates for your clients?

Join us for a fast paced two hour seminar on tackling the problems land surveyors face when providing quality estimates for clients. Issues which will be discussed include:

- Estimating or Bidding? What are the differences?
- The various tasks involved in providing a quality bid?
- Equipment, supplies, travel and field personal.
- Charge out rates. What should be covered?
- Accounting for hidden costs.
- Capital costs.
- Crew rates, disbursements and contingencies.
- Professional value. How do you get value for your time?

The presenter, Brent Taylor, was commissioned as a British Columbia Land Surveyor in 1984 and a Canada Lands Surveyor in 1995. He has been actively involved in providing land surveying services to a variety of clients and industries since 1981 and he is currently President of Polaris Land Surveying Inc.

- Kootenay Regional Group - September 28, 2016 - Cranbrook, BC
- Lower Mainland - September 29, 2016 - location not yet determined
- Vancouver Island Regional Group - September 30, 2016 - Victoria, BC

Times and exact locations will be provided as soon as available.

Legal Issues

North Vancouver Man Who Chain-Sawed Neighbour's Deck Ordered to Pay

Source: North Shore News - Friday, June 24th, 2016
Page: A1 / Front, Section: Up Front, Byline: Jane Seyd

Submitted by Mike Thomson, BCLS, Surveyor General

Neighbour in Deck Dispute Ordered to Pay - Homeowner Cut Off Part of Neighbour's Deck With Chainsaw

"If it offends you, cut it off" isn't a sentiment that should be taken literally by homeowners, a B.C. Supreme Court justice has decided - especially not when the offending structure is your neighbour's deck.

A judge had to step in recently and sort out the acrimony between two North Vancouver neighbours whose disagreement over a property line encroachment ended in both a chainsaw solution and a lawsuit.

According to court documents, relations between David Watson, who lives at 5469 Indian River Drive and the couple who used to live next door at 5495 Indian River Drive - Geoffrey Taylor Charlton and Sheila Barlett - turned distinctly unneighbourly over the property line issue.

Charlton, who bought the house in 2012, took issue with Watson's septic tank, set of stairs and outside deck, which encroached about three feet on to his property.

Continued on Page 46 ➢

Continued from Page 45

Witnesses at the trial said those structures had originally been built by a previous owner. Watson later had the rotting deck and stairs replaced - without a building permit and at a slightly larger size.

In January 2013, Charlton told Watson he'd had a property survey done and said Watson would need to deal with the issue. Watson said he'd consider it.

But two weeks later, while Watson and his family were out, Charlton took matters into his own hands, using a chainsaw to cut off portions of Watson's deck and stairs that crossed the property line and moving the footings for the deck.

He took about eight hours to complete the task, using a chainsaw, skill saw, hammer, nails, and other tools, along with a backhoe to remove footings for the deck, according to court documents. Charlton also blocked Watson's access to the septic tank with pieces of wood held in place with wires and screws that rested on the tank and supported the deck above it, according to court documents.

Each time Watson removed the wood blocks, Charlton would replace them. At one point, Watson alleged Charlton had "threatened to cut his septic tank in half" and also swung a rake at him.

Not surprisingly, "all of these actions fostered bad blood between the parties," noted B.C. Supreme Court Justice Trevor Armstrong.

In considering the issues, Armstrong found that Watson was careless in not checking the property line before rebuilding the deck. "Common sense would have informed the plaintiff of the need for a building permit and a survey," he wrote.

But he also found the encroachments had minimal impact on the neighbours' property and would be costly and cumbersome to move.

The judge therefore ordered that the neighbours sell that strip of their property to Watson at fair market value.

In court, Charlton justified his actions, saying he removed Watson's deck because it was unsafe.

But the judge didn't buy that, adding homeowners are not entitled to engage in "self-help" remedies that cause irreparable damage to another person's property - especially without any prior notice.

"In my view this antisocial behaviour was not rational or supported in law," he wrote, awarding $9,000 to Watson for Charlton's trespass.

Armstrong also awarded $2,000 to Charlton for the encroachment of the septic tank.

Survey History

Elk Pass Boundary Restoration Survey

Dave Swaile, BCLS, CLS

The Alberta-British Columbia Boundary Commission has just completed a monument restoration survey to restore a number of deteriorated provincial boundary monuments in the Elk Pass area of the Rocky Mountains. The work was undertaken by Jamie Hume, BCLS, ALS, SLS, CLS, P.Eng and the commission signed the final plans at their face-to-face meeting this spring in Edmonton.

A Brief History of the Alberta-BC Boundary Commission:

British Columbia joined confederation in 1871, with Alberta following in 1905. The Alberta-British Columbia boundary was originally described as being "*from the Boundary of the United States northwards by the Rocky Mountains and the One hundred and twentieth Meridian of West Longitude*". *"By the Rocky Mountains"* was determined to mean the height of land separating the drainage basin of the Pacific Ocean from those of the Arctic and Atlantic. However no surveys had been done to officially mark the boundary. In the early 20th century, increasing pressures from settlement, dispositions of coal and forest tenures and the construction of roads and railways drove the need to survey and mark the height of land portion of the provincial boundary.

In 1913, the governments of Canada, BC and Alberta formed the Alberta-BC Boundary Commission with the task of determining and marking the boundary between the two provinces. Arthur Oliver Wheeler was appointed as the BC representative, Richard William Cautley was appointed for Alberta, and James Nevin Wallace was appointed for the Dominion government.

Continued on Page 47

Continued from Page 46

The first priority in 1913 was the survey of the numerous passes through the Rockies. Because these passes were typically the areas with the most intensive development and the least obvious height of land, the commission surveyed the passes as a series of straight boundaries that approximated the true height of land. These straight-line boundaries were cut out to a width of six feet, and concrete monolith monuments were placed at each deflection.

Typical Concrete Monolith Monument

By the time the Commission went dormant in 1924, it had surveyed the entire length of the height of land portion of the provincial boundary, plus the first third of the straight boundary northward along the 120th Meridian. The surveys done by the commission between 1913 and 1924, being a combination of Cautley's straight-line boundaries through the passes, Wheeler's surveys of the more remote height of land boundary sections and the completed portion of the 120th meridian, were adopted by legislation passed by the three governments as the official provincial boundary.

The Commission re-established itself in the 1950's to survey and monument the rest of the 120th meridian, all the way to the 60th parallel, largely in response to increased oil and gas activity in the northern reaches of BC and Alberta.

The more rugged portions of the boundaries were surveyed by Wheeler to determine the true height of land boundary, using photogrammetric techniques that were considered cutting-edge for the time period. Wheeler built large rock cairn monuments along his portions of the boundary. Wheeler's surveys did more than just locate the provincial boundary: they also mapped large areas of land on either side of the boundary for the first time, providing excellent topographical information in an otherwise uncharted region.

Typical Rock Cairn Monument

The Boundary Commission continues today, meeting twice yearly to discuss matters relating to the provincial boundary. Currently, Peter Sullivan serves as the Commissioner for Canada, Ravi Shrivastava for Alberta, and Mike Thomson for British Columbia. One of the commission's several roles is the ongoing preservation of the boundary's monuments.

The Elk Pass Restoration:

As one can imagine, many of the concrete monolith monuments placed by Cautley one hundred years ago have weathered and are now in poor condition. The commission

Continued on Page 48 ➢

Continued from Page 47

received a report in 2011 prepared by the Bow Valley Provincial Park Stewards, a local volunteer organization, indicating the deteriorating conditions of the monuments in the Elk Pass area. Many of the monuments, given their proximity to hiking trails, had also been vandalized over the years.

In response, the commission awarded a contract in 2012 for a land surveyor to inspect and make recommendations on Monuments 1M through 14M in the area, these monuments were all concrete monoliths set by Cautley in 1916. Upon reviewing the recommendations, the commission elected in 2013 to proceed with restoration of 10 of the 14 monuments; the intent at the time was for the land surveyor who did the inspection to carry out the restoration work as well. Unfortunately, 2013 was the year that brought unprecedented flooding to the southern portions of BC and Alberta and the site was rendered inaccessible.

Following a number of issues that prevented the survey from being carried out in the summer of 2014, the commission invited new proposals from survey firms for the restoration work to go forward in the summer of 2015. The successful proponent was CIMA+ Geomatics Land Surveying Inc. of Calgary, with Jamie Hume to be the land surveyor of record on the project.

The contract called for the restoration of 10 monuments in Elk Pass. The most visible of the 10 - Monument 1M, which is located right beside a popular hiking trail - was to be restored in the original concrete monolith design. The other nine monuments, which were decidedly more difficult to access, were to be restored using standard capped post monuments driven through the remnants of the original monoliths' concrete bases. The restored monument locations were to be measured and georeferenced to a modern standard.

Survey returns called for a survey report - detailing the evidence found, "before and after" photos, and details of the placed monumentation and ancillary evidence - and a survey plan prepared in accordance with the federal National Standards for the Survey of Canada Lands. Copies of the plan and survey report will be filed in each of the repositories for BC, Alberta and Canada.

The area for the Elk Pass survey is located in the Rocky Mountains, approximately two hours' drive from Elkford, BC and is adjoined on the Alberta side by Peter Lougheed Provincial Park and on the BC side by Elk Lakes Provincial Park. A popular hiking trail follows a portion of the provincial boundary in this area.

The most viable access to the area was determined to be from the BC side; the survey crew was able to park in a parking lot at the Elk Lakes park boundary and then ride ATV's along a right of way that took them to the provincial boundary. Once at the boundary, all subsequent transportation was on foot, partly due to terrain, but also due to restrictions on the use of ATV's within the provincial parks.

A Challenging long Hike to the Top

Jamie Hume divided the field work into two separate trips. The timing of those trips needed to be planned late enough in the year to allow the snow to melt, but also needed to coincide with the wishes of park staff to keep the crew out of the park during critical grizzly bear feeding times.

Jamie and his crew made the first trip in July, and this trip was committed primarily to assessing the existing survey evidence, restoring all ten monuments, and planning for the survey measurements. Jamie then returned to the field in September to tie in all the monuments; all points had sufficient views of the sky to allow direct observations with GNSS equipment.

Continued on Page 49

Continued from Page 48

Remains of Monument 1M ... Prior to Restoration

Newly Restored Monument 1M

Jamie's preliminary survey report and plan were forwarded to the commission in the fall, and after a few edits and revisions, we received the final products which were signed by the boundary commissioners in May. Jamie was kind enough to provide me with the photos that are included in this article.

The Elk Pass restoration survey has saved a number of monuments from being lost and will serve to keep the boundary well-marked for the next hundred years. The commission hopes to be able to carry out similar restoration surveys on other critical portions of the provincial boundary in the years to come.

On a related note, author and historian Jay Sherwood is currently preparing a book on the history of the original Alberta-BC boundary surveys. The book's release is anticipated to coincide with the celebrations marking Canada's 150th birthday in 2017. I am very much looking forward to Jay's telling of this important piece of Canada's history.

Survey Technology

The Combo that Opens Access

By Ernest Yap

This entry is part 5 of 7 in the series xyHt in print, June 2016
Website: http://www.xyht.com/aerialuas/the-combo-that-opens-access/

The most logical integration of technologies for surveyors is combining 3D laser scanning with UAVs.

It's no secret that many geospatial professionals are enamored with unmanned aerial systems (UAS). For many years, the pros and cons of deploying small UAS for mapping and surveying, along with their ongoing regulatory discussions, have been well researched and documented. In general, the UAS opportunity for land surveyors is that they can expand their toolsets and service offerings because it gives them access.

UAS mapping provides access to airborne mapping, which is access to a different vantage point at a lower price

Continued on Page 50

Continued from Page 49

point; it's access to perform more services in-house by not needing an expert subcontractor such as an inspector or an aerial triangulation specialist; it's access to remote and dangerous areas. Perhaps most importantly, it's access to new markets and revenue streams. And, one of the applications that leads to new revenue is the combined use of 3D scanning and UAS mapping.

It's not as if mapping professionals see drones with the wide-eyed wonder of the average consumer. UAS are simply another type of platform to capture aerial imagery, whether that's for mapping or for surveillance and monitoring. The surveyor perspective is that UAS add additional offerings to their existing services, which they can leverage with their geomatics skillset. What's most significant is the cost and frequency from which they can acquire data at that vantage point.

Traditionally, an engineering company had to rely on the services of an aerial surveying firm to fly a small area with manned aircraft using expensive aerial sensors. The unit economics and deployment costs made that a difficult business justification for daily use. However, with UAS, that same engineering firm has more choices.

They could hire a land surveying company that now has ground survey and UAS mapping capabilities. They could hire an aerial mapping firm who now has an arsenal of UAS, manned aerial systems, and vehicle-based mobile mapping. Or, they could even buy their own UAS mapping capability in-house, because the mapping process is being made automated.

Opportunity

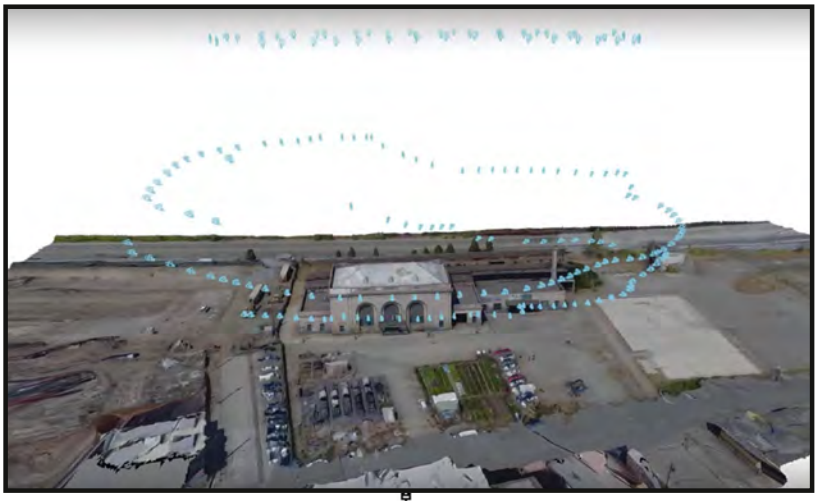
The most logical combination of survey technologies with UAS is to use 3D laser scanning and UAS photogrammetry on particular jobs. The capabilities are complementary, each overcoming the other's weaknesses. Dominique Pouliquen, senior manager of Autodesk's Recap 360 and UAV initiative, agrees. Recap is one of a few web service platforms that ingests and prepares the data from laser scanners and digital cameras so that meaningful information can be fed into the architectural and construction design process.

"We started with laser scanning [and] photogrammetry. [Then] many users started to take photos of their sites [with UAVs]. We looked at the use case and started to focus on a UAV workflow," said Pouliquen.

3D laser scanning provides street-level detail, which is what a human sees from their vantage point. Scanning data is highly detailed, dense (upwards of 1000 MHz), and has a high relative measurement accuracy. Many laser scanners are built with RGB cameras, which outputs colored point-clouds and corresponding photos.

"Laser scanning is the way to go when you have to scan interiors. You would not use [photogrammetry] inside the building or inside the factory," added Pouliquen who was speaking from the perspective of using survey-grade point-clouds for the design and engineering process. "The advantage of laser scanning is the deterministic aspect of it: you always know what you're going to get."

However, there are times when the surveyor needs 3D data from places that a tripod laser scanner can't access.



This screen cap shows a flight path around a building exterior captured with 3D scanning and UAS photogrammetry, processed with Autodesk ReCap 360.

Continued on Page 41

Continued from Page 50

That could be when the tripod setup would be impossible or dangerous, such as the capture of building exteriors from the ground view to the top or when a higher vantage point scan of a smaller area is required, such as construction sites. Traditionally, these types of tasks were completed via airborne photogrammetry and lidar with manned aircraft, but the costs couldn't be justified for daily use.

UAS fill this gap and take mapping capability above eye-level. The typical mapping UAS carries a nadir camera, has an automated flight-management system, and throws all the images into a mostly automated DEM, orthophoto, and 3D-model generator. These types of UAS seem to have the right fit for cost, speed, and ease of use. In particular, these unmanned photogrammetric solutions are well suited for exterior mapping applications to capture photo-realism with colors, lines, textures, and planes that laser scanners cannot do with ease.

"The main applications for using UAV [are outdoors] to monitor construction sites daily. This is the number-one use case for [Autodesk's] customers," said Pouliquen. "Not only do they want orthoviews of a site or a point cloud; they want to get answers from the data such as 5D [BIM i.e. 3D designs, schedule, and cost], asset management to monitor daily stockpile, preparation [such as determining] access for a truck, and comparing the as-built with design intent [using BIM overlay with point cloud]."

Technical Challenges

Using UAV with laser scanning comes with many technical challenges, in the individual technologies themselves and in the integration between their datasets. The first principles of photogrammetry and scanning still apply, regardless of the platform.

The range of laser scanners on the market produces dense point clouds with relative accuracies from sub-millimeters to 1-2 centimeters. For UAV photogrammetry, the quality of the data depends on the sensor, the flight planning, and the actual flight conditions.

Generally, small UAV-based photogrammetry can achieve a 1-2 cm relative accuracy in horizontal and vertical components. Dense point-matching techniques are then employed to produce per-pixel density. Like any nadir photogrammetric system, there will always be a vertical bias in the accuracy of the height measurements due to image geometry, which can be minimized by high overlapped imagery from multiple angles.

The Riegel RiCopter is a non-typical mapping UAS because it's equipped with liar and cameras. Credit: Riegl GmbH

For UAV image capture in particular, a high frame rate for the purpose of high image overlap is employed to compute higher accuracies and to minimize the effect of wind that is skewing imagery off-nadir.

Another characteristics of sUAS mapping is that the relatively low flying height (i.e. 500 ft) can mask the

Continued on Page 52

Continued from Page 51

effects of systematic camera errors and distortion, which are generally poorer due to the use of consumer-grade, non-metric sensors. Photogrammetric workflow providers know this; thus, they usually have self-calibration techniques embedded in their offerings that require the use of ground control to fix most biases. For best results, 3D scanning and UAV photogrammetric datasets are generally tied to the same ground control points, which results in a uniform point cloud distribution possible at similar accuracy.

However, nadir imagery is not the best option if the purpose is to capture the exterior facades of buildings. Instead, a small UAS (generally a multi-rotorcopter) can be used with oblique-facing cameras. In the most cost-effective case, a UAS operator would simply tilt an existing nadir camera sideways and create a flight path that ensures that all angles of a building facade are captured with high image overlap.

The interior geometry of the camera installation is cause for concern because "tilting" a camera often requires a camera re-calibration, especially if GPS is employed as positional initialization. Once again, the close distances, visual-odometry, and self-calibration techniques could minimize systematic errors.

Then there's UAS with lidar. At this point, the cost of system would increase dramatically as a result of the lidar sensor, which is coupled with a higher-grade GNSS/INS system. As such, lidars are generally line scanners; each range measurement is an independent measurement. Thus, a workflow cannot use camera geometry and bundle adjustments to "tie" images together into a single, intertwined network to minimize systematic sensor errors.

Also, such systems produce point clouds that are limited to kinematic GNSS accuracy. However, the availability of flash lidars could overcome this roadblock. In addition, the economics of laser scanning will change with $200 lidars being made for self-driving cars.

Workflow Automation

It's easy to see why traditional aerial mapping workflows are generally handled by specialists because errors are magnified by increasing flying height. UAS workflow providers know that this is a major obstacle for user adoption because most users are non-specialists. Thus, they have set out to automate the mapping process by taking full advantage of minimizing possible photogrammetric issues with lower flying heights, with ground control, and by using optimized computer vision techniques from outside the geospatial industry.

Pouliquen provided Autodesk's perspective on this subject. "The whole idea behind Recap was to democratize scanning or the digitization of the real world. Laser scanning [and aerial mapping] is so complex to use. You had to be a surveyor."

He added that Autodesk has built a platform that enables anyone to use it. "Our platform [is] for everything scanning, everything reality capture. The future is to combine the indoor scans and outdoor [imagery]. In integration, you get the same type of data in 3D point cloud or 3D mesh."

Autodesk wants to make mapping so easy that it's just one piece of a broader picture. It has an initiative to open up its core mapping technologies such that software developers can build customized applications on top of their platform. Pouliquen re-iterated that it's about getting the end-customer what she really wants in the easiest way possible, which is not the mapping data, the UAV, or the 3D scanner. "You need to digitize the as-built condition, the interior or exterior condition, so that you can bring reality [back] into the design process.

"[From the mapping data], we are trying to understand what meaningful information, answers, and analytics would make sense to the end-users. Then you can start designing the renovation of the building or layout of your factory or do infrastructure design to help architects and designers do their jobs."

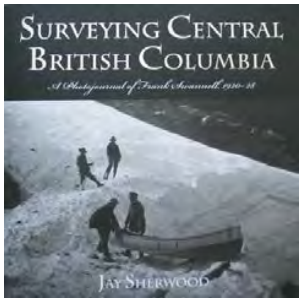
Ernest Yap is the founder of ERNO Technologies, a startup working with 3D mobile sensing devices and BIM in Toronto, Canada. Follow him @geoernestyap and on his blog at http://ernotech.co

FINANCIAL CONTRIBUTIONS TO THE BC LAND SURVEYORS FOUNDATION

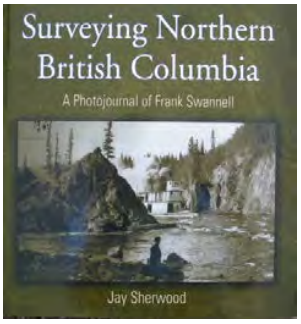
The two primary objectives of the BC Land Surveyors Foundation are to:

- create and maintain a library that houses historical and current reference material related to the surveying industry in British Columbia; and
- financially assist students who wish to pursue careers in surveying by providing scholarships and bursaries.

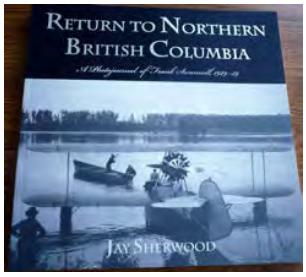
The Foundation has a number of books for sale - consider purchasing them for members of your staff, local schools, or libraries. They will make a wonderful gift and at the same time, your contributions will help support the Foundation. The following books are available from the ABCLS office:



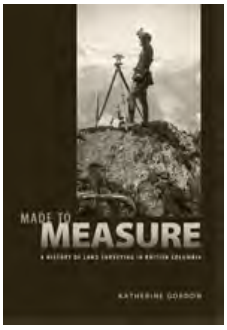
Surveying Central Canada
$42.00 (taxes included, shipping extra)
Author: Jay Sherwood



Surveying Northern British Columbia
$30.00 (taxes included, shipping extra)
Author: Jay Sherwood

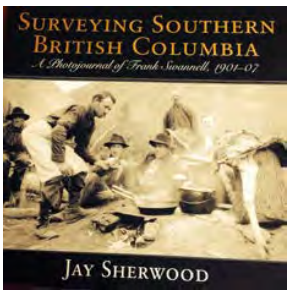


Return to Northern British Columbia
$42.00 (taxes included, shipping extra)
Author: Jay Sherwood



Made to Measure
$32.00 (taxes included, shipping extra)
Author: Katherine Gordon

Furrows in the Sky
The Adventures of Gerry Andrews
$21.00 (taxes included, shipping extra)
Author: Jay Sherwood



Surveying Southern British Columbia
$42.00 (taxes included, shipping extra)
Author: Jay Sherwood

Additional information on these books can be found on the Foundation/Books for Sale page of the ABCLS website.

The BCLS Foundation Trustees would like to invite all land surveyors to help support these worthy causes through financial contributions. If you are interested and willing to donate, you may contribute by cheque or credit card. You might also like to consider leaving a **Legacy Donation** through your will to contribute to existing scholarships - or to establish a new scholarship in your name. You can do this by stating in your will that the bequest should be made to: *The BC Land Surveyors Foundation, Suite 301-2400 Bevan Avenue, Sidney, BC V8L 1W1*

Donations by credit card can be given by calling our Association office: 250-655-7222.

All cheques should be made payable to the BC Land Surveyors Foundation and mailed to the Association office. Please provide your name(s) and mailing address so a receipt can be forwarded to you.

Our thanks to you for helping to ensure the future of the land surveying profession.

Armchair Surveyor

Imagine the following conversation between a surveyor (Joe) and his client (Samantha, aka "Sam") following the completion of a $5,800 survey.

The final check has just been passed and they're admiring the newly plotted plat (with extra fancy north arrow).

Joe: "Now Sam ... I wantcha to remember that this north arrow right here (pointing with business end of machete) is kinda shifting with time on this new plat of yours."

Sam: "How come? And why does my plat show those two iron pipes way over there for anyway? They're not even close to my property."

Joe: "Well ya see ... THOSE iron pipes were put in about 120 years ago and they're what I'm hangin' my hat on for the bearings of your whole survey."

Sam: "What did this other surveyor use to come up with a bearing?"

Joe: "Oh, probably one of those nice little staff compasses. I've got one myself, usually good to about two degree or so of being right on north."

Sam: "You mean magnetic north?"

Joe: "Well yeah ... in most cases we just go with whatever the previous surveyor used, which in this case, and most others, is magnetic."

Sam: "So what you're inferring is that magnetic north is moving around?"

Joe: "That's right! I just read an article about this, and since Amundsen's expedition in 1903, the place that a compass needle points to has moved about 150 miles to the north."

Sam: "And this needle pointing 'location' is still moving?"

Joe: "Yup ... constantly."

Sam: "Well then ... isn't there some other bearing reference that doesn't move around?"

Joe: "There are a couple actually. One is called grid north, which is based on a 'flat earth' mathematical model ... it's pretty easy to use if you have a couple $15,000 GPS units sitting around, or you do a lot of work around state highways. And there's astronomic north, which usually requires that you sight the sun or some other star and run your data through some whiz-bang computer program.

I'd rather stick with tradition and match the local bearings. This way, you're in the same bearing reference system as the abutting deeds that were used to piece together the new survey."

Sam: "That sounds logical, unless the abutting surveys are from different times ... then they could be incompatible, if any of them used a new magnetic pointing ... right?"

Joe: "Right again. But they usually stuck with whatever the prior surveyor used for reference."

Sam: "What happens if you have, like, 5 miles of surveys all connected together on one common magnetic reference? Since you've moved in relation to this "magnetic pole" you were talking about, wouldn't you really be at a slightly different magnetic bearing from one end of the "network" to the other?

Seems like if you could do one of these sun-shot things, you'd never have to worry about getting off like that ... you'd always be on that astronomic reference. I've been working with some GIS people from Montpelier and they've mentioned how nice it would be if everything was on the same bearing reference. Now I can see their point. Are you getting into that field at all? I've heard it's a wide open field."

Joe: "No ... not GIS yet, but it scares me to see some of the people compiling land boundary layers who don't understand most of the things we've been talking about. I've been promised a free demonstration on how to do one of those solar observations, or even a polaris during daylight hours, by the 'feds' at Green Mountain National Forest. They claim that you can have a bearing down to about 15" within about 45 minutes of starting the field observations. I should probably take them up on it."

Sam: "How accurate is your instrument?"

Joe: "Oh ... about 3"."

Sam: "And how close to magnetic north was that old-time surveyor?"

Joe: "Maybe a couple degrees."

The Landscape of Ernest Lamarque
Surveyor, Artist, and Renaissance Man, 1879-1970

Written by Jay Sherwood

Published by Caitlan Press Inc., ISBN 978-1-987915-01-3

Book Review by Robert Allen, BCLS (Life Member), CLS, CIG (Life Member)

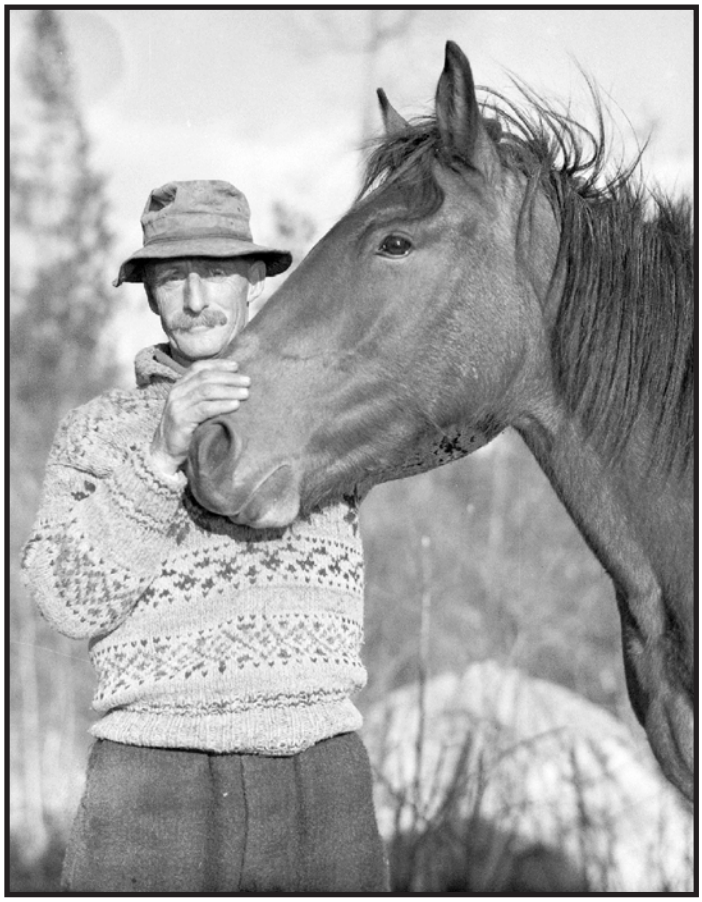
Jay Sherwood has done it again. He has produced another winner in his long list of published books, this one on Ernest Charles William Lamarque, DLS, BCLS #185 (Life Member #21).

Lamarque was born in England in 1879 to George and Mary Lamarque, the youngest of three children. At age two, his mother passed away and at age 12, his father had passed away. After being raised by aunts and uncles and sent away to boarding school, he left England shortly after his seventeenth birthday in the summer of 1896 seeking adventure in Canada and soon began the life of a Victorian adventurer, perhaps, even, the last of his kind. By January 1897, Lamarque was in Winnipeg and soon joined the Hudson's Bay Company where he spent seven years in their employ in Saskatchewan, Alberta, British Columbia, and the North West Territories.

After leaving the Hudson's Bay Company, he made the radical shift in life and became a British Columbia Land Surveyor. He served his articles prior to World War I and became BCLS #185 in 1915 and on March 3rd, 1917, he became DLS #664. He then spent the rest of his working life as a Land Surveyor, mostly in remote parts of British Columbia.

While with the Hudson's Bay Company, Lamarque virtually followed in the footsteps of Sir Alexander Mackenzie, Peter Pond, and David Thompson, all of whom I have a liking for. Prior to becoming a land surveyor, he started his surveying in Prince Rupert and the Bulkley Valley (1907), the British Columbia-Yukon Boundary (1908), the British Columbia Electric Railway in the greater Vancouver area (1909/1910), various mineral and timber surveys near Whistler and Chilliwack Lake (1911), the CPR Twinning Project in various parts of British Columbia (1912/1913), and the Peace River Tramway and Navigating Company (1914).

In 1915, Lamarque enlisted in World War I. After serving about two years, he received an honourable discharge. After the war and during the 1920's, he operated a small practice in the Vancouver area as well as doing some out of town work near Creston, Canim Lake, Chilliwack Lake, Jericho Beach, UBC, Portland Canal near the Alaska Border, and Revelstoke.



Earnest Lamarque with his Horse

As Jay Sherwood says: "The 1930's was the most productive decade of Lamarque's surveying career …" and much of that work was for the provincial government's Department of Public Works. From 1930 to 1933, he worked on the Big Bend Highway, north of Revelstoke on Highway 5 near Valemount, and on Cunningham Creek north of Cariboo Lake.

In 1934, Lamarque was one of two British Columbia Land Surveyors selected to be part of the Bedeaux

Continued on Page 55 ➢

Continued from Page 54

Expedition that left Fort St. John to go overland to Telegraph Creek. Lamarque was chosen to find a route suitable for Bedeaux's large party and its five half-track Citroens through that unmapped part of the country including going over the Rocky Mountains. The other British Columbia Land Surveyor on the crew was Frank Swanell who Jay has written a number of books about.

Shortly after I moved to Fort St. John in 1968 to article to Ken Longstaff, I had heard about the Bedeaux Expedition, but I could find virtually no information about it. This idea of travelling north-west through uncharted territory and through the Rockies intrigued me. It was many years later that I finally got more information on the Expedition when the book *Bannock and Beans* was published. Jay was the editor of the book and it was based on the diary of Bob White, one of the cowboys who went along for the ride, so to speak. In recent years, there have been a few other articles about the Expedition written in *British Columbia History* but none have provided as much information about it as Lamarque did through this book by Jay. So detailed were his notes, that I was able to accurately track his route in the British Columbia Recreational Atlas from Fort St. John to Dease Lake. The Citroens didn't make it very far beyond Fort St. John, but the rest of the Expedition made it to Fort Ware on the Finlay River in the Rocky Mountain Trench. Lamarque did, however, make it all the way to Telegraph Creek after marking the route all the way to Dease Lake. After Telegraph Creek, he returned to Fort Ware to meet up with the rest of the party and they all soon headed south and back home after that. 57 pages of the book were dedicated to this Expedition alone, with much more than any other publication I have read about it.

From 1935 to 1937, Lamarque worked on various government contracts in the lower mainland Vancouver Island, and the Bella Coola area. In 1938, he was in the Manson Creek area working on some mineral claims and in 1939 he worked on a proposed route for the Alaska Highway up the Rocky Mountain Trench and near the well-known Davie Trail. During World War II, he surveyed numerous airstrips in all parts of the province and after the war he went back to his private practice in Vancouver where he took on small projects into the late 1950's. He also did some travelling with his wife, Winifred (Cope), a nurse trained at Calgary General Hospital, whom he had married in late 1910. Winifred died in September 1967 and a short while later he took her ashes to Winnipeg to a "wonderful old cemetery at St. John's Cathedral … dating to the time

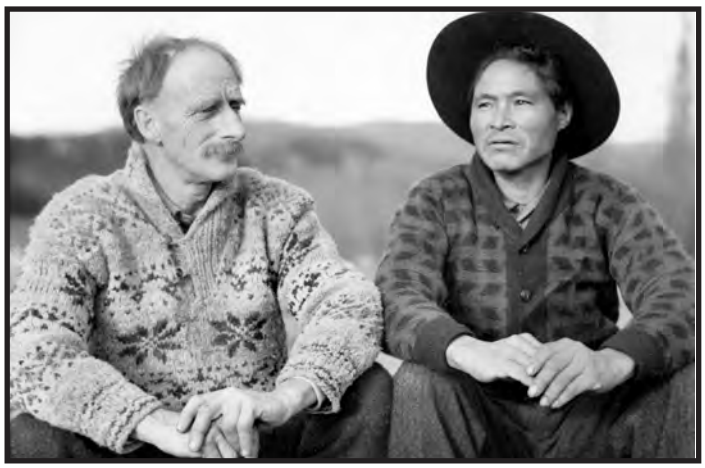
Continued on Page 56

Continued from Page 55

of the Selkirk Settlers." Lamarque went on to say "I can only hope that, ere long, I may be laid to rest besides the ashes of my wife". After 57 years of marriage, he missed her terribly. In early 1969, he moved to Oyama and spent the last two years in a log cabin on his nephew's property and lived independently and contentedly until he passed away on December 24th, 1970.

Lamarque not only kept meticulous diaries, but in later life also wrote an extensive memoir. He was an avid photographer and a well-known and distinguished artist. There are 18 reproductions of his paintings in the Gallery section of the book and many of his photographs dispersed throughout the book and they all give an accurate account of early western Canada. Fortunately for all concerned, he left almost all of his memorabilia to the Whyte Museum of the Rockies in Banff. Lamarque was there in June 1968 for its grand opening.

Lamarque is commemorated by the naming (by the Provincial Government) of Lamarque Pass, after him. Officially, it is located at N 58° 16' and W 127° 31',but realistically, it should really be at N 58° 17.14' W 127° 41.76' at the height of land between the Kechika River drainage and the Stikine River Drainage at the continental divide. It looks like I now have another mission to embark on soon and that is to get the correct location established for the Pass. Lamarque was also instrumental in having numerous other land features named after members of the Bedeaux Expedition.



Earnest Lamarque with his good friend Joe Poole, who accompanied Lamarque on part of the Bedeaux Expedition

To end, I think it best to quote the last paragraph from the book as Jay sums up Lamarque's life best by saying: "Lamarque's adventurous career covered the end of the 19th century and the first half of the 20th, and spanned across western Canada. During those years, he was involved in several activities that had historical significance, and much of his work was in remote areas.

He revelled in his adventures: the people he met and the places that he saw. He recorded his experiences through writing, photography and art. Lamarque's legacy is a landscape that encompasses many areas of western Canada and events that affected its history. His record helps provide a sense of what it was like to live, work and travel in this part of the country in a different era."

One of Ernest Lamarque's Christmas cards that he drew and annotated

The Land of Heart's Delight, Early Maps and Charts of Vancouver Island
By Michael Layland

Book Review: By Robert Allen, BCLS (Life Member), CLS, CIG (Life Member)

The above noted book was lent to me while recuperating from my year-long cancer operations and it took a while to get up enough energy to read not only this book, but other books as well.

The author, Michael Layland, spent a great deal of time searching for the maps and charts of Vancouver Island and researching each one in order to comment on them. The first map was from 1566 and was loosely based on Marco Polo's travels and by using some imagination, Vancouver Island can be seen on it, although it isn't shown as an island, but more of a large peninsula. The book then goes on to showcase the Spanish and English maps from Captain Cook and Captain Vancouver's times around Vancouver Island. By the mid 1840's, most of the mapping was done by land-based Land Surveyors such as McKay, Grant, Pemberton, Pearse, Tiedemann, Trutch, and the like. Incidentally, while it doesn't say so in the book, Captain Walter Colquhoun Grant, LS, was responsible for bringing the first scotch broom seeds to the Pacific Northwest. While they might look good in their bright yellow flowers, they are a terribly invasive species. So, never let it be said that a land surveyor didn't do something noteworthy!

There are 214 pages with no fewer than 133 maps and charts including hydrographic charts, subdivision plans, topographical plans, aeronautical charts, etc., all to do with just Vancouver Island. The text not only describes each map or chart, but also includes some well written history of Vancouver Island.

I would like to thank the person who lent me the book and also thank the author, Michael Layland, for his hard work and dedication in putting all of this together in one place.

The only map of Vancouver Island I didn't see in the book was one I prepared of the Comox Valley area where I grew up. It was a Boy Scout project from about 55 years ago. My map is either in the Smithsonian Institute or in the landfill and I rather suspect it went into the latter location.

The machine operators were told not to disturb the grade stakes. They didn't and now some of them are on six foot high 'islands'.
Submitted by Robert Allen, BCLS (Life Member), CLS

New Canadian Provinces Accidentally Discovered

By Bill Brookes, CLS

One time while planning a survey project in eastern Canada, I had a call to request some station descriptions and coordinates from our information services people. The appropriate station record printouts arrived promptly, but I was somewhat surprised to learn that our data bank was harbouring a few new provinces of which I had never heard before. On each station record sheet in the data field reserved for provincial names I found a wonderful variety of nomenclature, such as NOVA SCOTIACK, NOVA SCOTIARD ISLAND, NEW BRUNSWICK ISLAND, and QUEBECUNSWICK, to cite a few.

While I found this a bit amusing, I felt that it was my duty to report these errors to the information services people, as well as to satisfy my curiosity as to how they had come about.

It seems that whoever keyed in the information for these particular stations had left the keyboard "insert" key engaged during the data entry for the "province" field. As a result, when a provincial name was entered that had fewer letters than the previously entered name, the extra letters from the previous name remained appended to the "new" name.

For example, "Nova Scotia" has ten letters and one space (or occupies a total of eleven spaces in the data bank's province field), while "New Brunswick" has twelve letters and one space (the equivalent of thirteen spaces). When "New Brunswick" is overwritten by "Nova Scotia" the two extra characters, which are c and k, help to create this new province called "Nova Scotiack". I 'll leave it to the reader to see how the other above mentioned names came about as unintended amalgamations of the Maritime provinces and Quebec.

I decided to see what other comic combinations might be lurking out there. I took a sheet of squared graph paper and listed all the Canadian provincial and territorial names, one under another, allowing one square for each letter and each space in each name. Keeping in mind that it is the shorter names which must overwrite the longer ones to produce the desired result, the number of possible combinations is quite limited and the results were somewhat disappointing. Names like ALBERTADLAND, QUEBECO and MANITOBASWICK don't exactly produce side-splitting reactions. (I suppose that I might have found a few gems had I used the list of the 50 U.S. states, but after all this is a Canadian publication, so I leave that to the reader to pursue.)

However, as I thought about the whole thing again, my initial sense of amusement returned. It only goes to prove my long held notion that while we humans may be very clever at devising automated systems, we become too trusting of the new technology, put too much faith in it, and become complacent. And when we let our guard down, we often times receive a good, swift kick in the pants from the very thing which we created and thought we had mastered. Now *that* is amusing. I think the funny names on the printouts was just the system 's way of having a laugh on us.

GPS Survey Challenge

From field to finish, we've got you covered.

Cansel

Proudly Canadian for over 50 years

Contact us to get your customized solutions today.

cansel.ca
1.888.222.6735
marketing@cansel.ca

SURVEY | MAPPING | AUTODESK | WIDE FORMAT | GENERAL LINE CONSTRUCTION | PROFESSIONAL SERVICES

www.abcls.ca

British Columbia
Land Surveyors