



AGM REPORT

Alberta Land Surveyors' Association

April 1999

The Council of the Alberta Land Surveyors' Association met on Friday, April 23rd prior to the business meeting of the Annual General Meeting. Here is a summary of those discussions.

Registrar's Report

It was MOVED by Mr. Winton, seconded by Mr. Leeman, that Council approve a branch office for Cridland & Associates Ltd. in Fort McMurray. Chris Alcock, ALS to be the surveyor in charge.

Motion Carried

It was MOVED by Mr. Longson, seconded by Mr. Grosz, that Council approve Richard Schlachter's request to be exempted from the ALSA requirements for professional liability insurance.

Motion Defeated

Mr. Jaques abstained from voting.

GeoReferenced Images & Digital Watermarks

Council reviewed a research proposal from University of Calgary professors Brian Ballantyne and Michael Chapman. In the proposal, it is noted that the digital plan initiatives "...have raised very real concerns within the ALSA about issues of copyright, liability, increased risk, because of the perceived ease with which digital products can be altered. However, these initiatives also provide many opportunities to land surveyors to offer enhanced products to existing clients and to the public of Alberta."

"With the advent of digital plans, the possibility now exists for the enhancement of this information using additional information sources. In par-

ticular, the availability of high-resolution satellite images and scanned aerial photograph records offer a new form of supporting information... Incorporating high resolution digital images with cadastral plans can lead to several tangible benefits."

"With the advent of electronic communication such as via the internet, issues of copyright and royalties require that the supplier can prove ownership... While data encryption is not a new concept, it would be beneficial to use an encryption technique that leaves the image 'unaltered' to the naked eye and, yet, capable of being deemed authentic... It is now possible to create an equivalent digital watermark that can be embedded into the image and easily removed to recover the original image."

The research project will address two primary issues:

1. High precision georeferencing of digital images to cadastral files to ensure co-registration;
2. Incorporating digital watermarks into images for the purpose of authentication.

It was MOVED by Mr. Sullivan, seconded by Mr. Benson, that the proposal submitted by Drs. Ballantyne and Chapman be approved.

Motion Carried

The total cost for the research proposal is \$11,400 and is expected to be completed by the end of August. This was the second reading for this motion. The first reading was given at a specially convened Council meeting on April 12, 1999.

There were eight recommendations to the members at this year's Annual General Meeting. Here is a summary of those discussions.

Recommendation #1 – Position Based Accuracy Standards

It was MOVED by John West, seconded by Lyall Pratt, that Recommendation #1, Part A, be adopted.

Motion Carried

It was MOVED by John West, seconded by Mark Prevost, that Recommendation #1, Part B, be adopted.

Motion Carried

It was MOVED by John West, seconded by Don George, that Recommendation #1, Part C, be adopted.

Motion Carried

(a) That Part C, Section 1 be deleted and replaced with the following:

PART C, GENERAL STANDARDS AND PROCEDURES: Section 1: MEASUREMENTS AND ACCURACIES

Method of Least Squares

1.1 The following section deals with measurements and accuracies associated with cadastral boundary definition surveys. As measurement techniques evolve and new methodologies become available, the burden of proof that these guidelines or their intent are complied with rest with the practitioner assuming responsibility for the plan.



The measure of accuracy for cadastral surveys shall be determined by either employing the method of **misclosure** or the method of **least squares**.

Where the method of least squares is employed, the measure of accuracy shall include both the observational residuals and the semi-major axis of the 95% relative 2-dimensional (horizontal) and/or 1-dimensional (vertical) confidence regions between monuments in the survey.

The 95% confidence regions used to assess the accuracy shall be derived from a properly weighted minimally constrained adjustment of the network. The **global variance factor** computed by the adjustment must be tested with the **Chi-Square Goodness of Fit Test**. In the event that the variance factor does not pass this test, the reasons therefore should be determined and the problem rectified. Subsequently, if the test is still not passed, the variance-covariance matrix must be scaled by the global variance factor.

The minimum accuracy standard, when expressed as a confidence region, shall be obtained from the following formula:

$$c = 0.02 + ((b)(d)) \text{ metres}$$

where,

“c” is the maximum allowable value of the semi-major axis of the 95% relative confidence region,

“b” is the precision in parts per million (ppm)

“d” is the distance between monuments in metres

New Surveys

1.2 For new surveys consisting of the surveyor’s own work, the minimum accuracy standard,

- when expressed as a **misclosure** shall be **1:7500 or 0.02 metres** or,
- when the method of **least squares** is employed, both the observational **residuals** and the semi-major axis from the **2-dimensional relative confidence regions**, shall be as deter-

mined in section 1.1 using a value of (b) equal to **130 ppm**.

Prior Surveys

1.3 When closing on work performed by other surveyors, the minimum accuracy standard,

- when expressed as a **misclosure** shall be **1:5000 or 0.02 metres** or,
- when the method of **least squares** is employed, both the observational **residuals** and the semi-major axis from the **2-dimensional relative confidence regions**, shall be as determined in section 1.1 using a value of (b) equal to **200 ppm**.

Checking Work

1.4 All surveys conducted under the Surveys Act must be verified by one or more of the following:

- Closure on prior or current work,
- Closure on existing Alberta Survey Control,
- Check-measuring all observations,

or

· Other appropriate means
Sufficient field measurements shall be made to ensure there are no errors of layout or measurement.

Wellsite Surveys

1.5 The vertical accuracy within the surveyor’s own level circuits,

- when expressed as a **misclosure**, shall not exceed +/- **50 mm**. \sqrt{d} where d is the distance in km or,
- when the method of **least squares** is employed, both the observational **residuals** and the **1-dimensional relative confidence regions**, shall be as determined in section 1.1 using a value of (b) equal to **20 ppm**.

· a minimum of two benchmarks with published elevations should be used and the result related to the appropriate vertical datum as specified in Part D, Section 1.14.

The horizontal accuracy of the surveyor’s own work,

- when expressed as a **misclosure** shall be **1:5000 or 0.02 metres** or,
- when the method of **least squares** is employed, both the observation residuals and the semi-major axis

from the **2-dimensional relative confidence regions**, shall be as determined in section 1.1 using a value of (b) equal to **200 ppm**.

When closing on work performed by other surveyors, the minimum accuracy standard,

- when expressed as a **misclosure** shall be **1:2500 or 0.02 metres** or,
- when the method of **least squares** is employed, both the observational residuals and the semi-major axis from the **2-dimensional relative confidence region**, shall be as determined in section 1.1 using a value of (b) equal to **400 ppm**.

(b) And that Part C, Section 2 be deleted and replaced with the following:

MEASUREMENTS AND ACCURACIES FOR GPS SURVEYS

The following section deals with standards for GPS measurements and associated computations performed for cadastral boundary definition surveys. Due to the complexity of GPS measurement and data reduction processes, these guidelines focus primarily on assessing the reliability and accuracy of these surveys. As GPS techniques evolve and new methodologies become available, the burden of proof that these guidelines or their intent are complied with rest with the practitioner assuming responsibility for the plan.

2.1 GPS surveys will be assessed as horizontal (2D) and/or vertical (1D) surveys for the purposes of accuracy measure.

2.2 The measure of accuracy for surveys conducted in whole or in part with GPS techniques, shall comply with Section 1.

2.3 Network adjustment shall include only (n-1) position differences or, if trivial position differences are included, the mathematical correlations should be properly accounted for.

2.4 The position of every monument included in a GPS survey either found



or placed shall be verified with sufficient redundant observations. This applies to both static and kinematic surveys.

(c) And that the preamble to Part D, Section 1.14 be deleted and replaced with the following:

As of June 1, 1994, the recognized horizontal datum for spatially referenced data in Alberta is the North American Datum, 1983 (NAD83), using the GRS 80/WGS84 ellipsoid. This datum and related ellipsoid therefore shall be used on all plans of survey registered in the Land Titles Office, if plan information relates to grid bearings or coordinates. The choice of map projections must be consistent with the requirements of the provincial mapping system.

The recognized vertical datum for spatially referenced data in Alberta is CVD28.

The plan of survey shall clearly show the datum or origin used for bearings, coordinates or elevations on the plan of survey as outlined below:

Recommendation #2 – Abbreviations

It was MOVED by John West, seconded by Bruce Jones, that Recommendation #2 be adopted.
Motion Defeated

That Part D, Section 1.9 (Abbreviations) be deleted and replaced with: Refer to the Land Titles Office Procedures Manual for abbreviations.

Recommendation #3 – Termination on the Quarter Line

It was MOVED by John West, seconded by David Hagen, that Recommendation #3 be adopted.
Motion Carried

That Part D, Section 4.2 be amended to read:

When a boundary of a right-of-way or road is coincident with, terminates or purports to define an *unsurveyed* 1/4 line, the *unsurveyed* 1/4 line shall be surveyed according to the Surveys Act, ***except where the posted limit is within 30 metres of the posted quarter section corner. In the latter case, the intersection may be made by adopting the bearing determined from the township plan or other registered plan. Bearing and distance from the existing monument to the new monument shall be shown on the plan. The method for performing the intersection should take into consideration the preservation of the survey fabric, and land owner concerns.***

Recommendation #4 – Ties To Unregistered Plans

It was MOVED by John West, seconded by Mark Kocher, that Recommendation #4 be adopted.
Motion Defeated

That Part D, Section 5.3 (Traverse Plans) and Part D, Section 10 (Surveys In Unsurveyed Territory Other Than Traverse Plans) of the Manual of Standard Practice be amended to read:

5.3 When performing a survey for a well location in unsurveyed territory, a surveyor is required to prepare a plan of survey if the well location is more than 2 kilometres from an existing survey performed in accordance with the Surveys Act. When performing this survey, a surveyor shall:

5.3.1 make any ties to existing surveys ***of public record (registered in the Land Titles Office or approved/filed with the Director of Surveys, ie: well location plans)*** that may be required to determine the relationship between the survey being performed and the theoretical section boundaries to the accuracies specified in ***Part C, Section 1.3.***

10 When performing a survey in unsurveyed territory pursuant to Part 3

of the Surveys Act, in addition to the requirements of that Act, a surveyor shall:

10.1 make any ties to existing surveys ***of public record (registered in the Land Titles Office or approved/filed with the Director of Surveys, ie: well location plans)*** that may be required to determine the relationship between the survey being performed and the theoretical section boundaries to the accuracies specified in ***Part C, Section 1.3.***

Recommendation #5 – Wellsite Surveys

It was MOVED by John West, seconded by John Wallace, that Recommendation #5 be adopted.
Motion Carried

That Part D, Sections 5.1 and 5.2 be amended as follows:

5.1 An Alberta Land Surveyor performing a survey for the location of wellsites and related facilities in surveyed territory shall locate and confirm sufficient monuments ***within, on or defining the section in which the wellsite is located to allow the determination of the wellsite in relation to the section boundaries. Monuments in this section refer to those placed in accordance with Part 2 or Part 3 of the Surveys Act*** to define at least one boundary of the section affected and shall show the relationship of the wellsite and related facilities to the said boundary. ~~Where there is a possibility of conflict, the surveyor shall exercise discretion to ensure that the wellhead or facilities are properly located.~~

5.2.1 Where the boundaries of a wellsite or related facility purport to define a property boundary, the said boundary shall be defined in accordance with the Surveys Act.

5.2.2 ***Notwithstanding Section 5.2.1, when a related linear facility (access road), crosses or terminates on a property boundary, the intersection***



may be calculated. The plan shall clearly indicate that the intersection is calculated.

Recommendation #6 – AEUB Requirements

It was MOVED by John West, seconded by Lorraine Hortness, that Recommendation #6 be adopted.

Motion Carried

(a) That Part D, Section 5.6 be amended as follows:

PART D, STANDARD PRACTICE FOR SURVEYS AND PLANS Section 5: WELLSITE SURVEYS AND PUBLIC LAND DISPOSITIONS

Wellsite Surveys

This section deals with the survey of petroleum related facilities, including the licencing of wells under the “Oil and Gas Conservation Regulations” and the “Energy Development Application Guide and Schedules (Guide 56).” Surface tenure on patented lands is normally protected by caveats registered by the applicant, whereas interests in Crown Lands are dealt with by the Land Administration Division of Alberta Environmental Protection (AEP).

A description of the common AEP dispositions is included in Part E, Section 10.

~~Environmental conditions relating to wellsite locations as expressed by the Alberta Energy & Utilities Board are included in Part E, Section 9: Guidelines outlined by AEP identifying environmentally sensitive wellsite locations are listed in Part E, Section 9.~~ A surveyor is expected to be familiar with these guidelines.

When performing wellsite surveys the following shall apply:

Reference Boundary
Refer to Recommendation #5

5.1 An Alberta Land Surveyor performing a survey for the location of

wellsites and related facilities in surveyed territory shall locate and confirm sufficient monuments to define at least one boundary of the section affected and shall show the relationship of the wellsite and related facilities to the said boundary.

Recommendation #7 – RPR Copyright Affidavit

It was MOVED by Syd Loeppky, seconded by Larry Pals, that Recommendation #7 be adopted as amended.

Motion Carried

That the following be added to Part E, Appendices, Standard Affidavits, Schedule C after the surveyor’s signature:

This document is not valid unless it bears an original signature (in blue ink) and a (survey company) permit stamp (in red ink)[Optional].

And that the paragraph which begins “Purpose: This report and the related...” be deleted in its entirety and replaced with the following:

Purpose: This report and the related plan and survey have been prepared and performed only for the benefit of the client, ~~the client’s purchaser (if this was prepared to facilitate a sale) and any other legal advisors and lenders/mortgagees:~~ **land owner, subsequent owners and any of their agents, and was prepared for _____ (purpose).**

Copying is permitted only for the benefit of those parties and only if the plan remains attached to this page. Where applicable, registered easements, utility rights-of-way and other registered instruments affecting the extent of the property have been shown on the attached plan. Unless otherwise shown, property corner markers have not been placed during the survey for this report. The plan should not be used to establish boundaries due to the high degree of risk of the user making an error in measurement. **This Real Property Report is valid on the date of survey only. Users are encouraged to have the**

Real Property Report updated for future requirements.

Amendment #1

The mover and seconder accepted a friendly amendment to change the last two sentences in the purpose statement.

The information shown on this Real Property Report reflects the status of this property as of the date of survey only. Users are encouraged to have the Real Property Report updated for future requirements.

Amendment #2

It was MOVED by Bob Haagsma, seconded by David Hagen, that the first sentence in the purpose statement be deleted and replaced with: We (I) have performed this survey and prepared this report and the related plan for the benefit of only: the land owner, subsequent owners and any of their agents, and was prepared for _____ (purpose) .

Motion Carried

Amendment #3

It was MOVED by Bob Haagsma, seconded by David Hagen, that the sentence which begins “The plan should not be used...” be deleted and replaced with “Do not use this plan to establish boundaries due to the high degree of risk of the user making an error in measurement.”

Motion Carried

Amendment #4

The mover and seconder accepted a friendly amendment to change the word “optional” to “if applicable.”

Affidavit As Amended

This document is not valid unless it bears an original signature (in blue ink) and a (survey company) permit stamp (in red ink)[If Applicable].

Purpose Statement As Amended

Purpose: We (I) have performed this survey and prepared this report and the related plan for the benefit of only: the land owner, subsequent owners and any of their agents, and was pre-



pared for _____ (purpose). Copying is permitted only for the benefit of those parties and only if the plan remains attached to this page. Where applicable, registered easements, utility rights-of-way and other registered instruments affecting the extent of the property have been shown on the attached plan. Unless otherwise shown, property corner markers have not been placed during the survey for this report. Do not use this plan to establish boundaries due to the high degree of risk of the user making an error in measurement. The information shown on this Real Property Report reflects the status of this property as of the date of survey only. Users are encouraged to have the Real Property Report updated for future requirements.

Recommendation #8 – Alliance Geomatics Initiative

It was MOVED by Mike Grosz, seconded by Don Jaques, that Recommendation #8 be adopted.

Motion Carried

That the Alberta Land Surveyors' Association endorses the concept of the "Alliance Geomatics Initiative" as outlined in the report, "Geomatics 2000, A Model for a Phased- Approach to the Establishment of a New National Geomatics Association" and recommends that it be ratified by the membership at the Annual General Meeting.

New Business

Recommendation #1 To Council

It was moved by Mr. Yanish, seconded by Mr. Cheng, that the concept of a continuing professional development program be resurrected and that input be obtained from the membership regarding the content and structure and that a revised program be presented to the 2000 AGM for approval.

Motion Carried

Recommendation #2 To Council

It was MOVED by Paul Stoliker, seconded by Dave Williams that: Whereas GPS technology has dramatically increased our ability to measure accurately over medium and long distances, and Whereas the advent of GPS technology has led to a decrease in (1) maintenance of existing and (2) establishment of new Alberta survey control markers, and

Whereas section 5.7.1 of the Manual of Standard Practice states that a non-monumented (section 43) survey can only be carried out if every property corner of the survey is within 2km of each of two Alberta survey control markers: BE IT RESOLVED that Council reviews the 2km criterion of section 5.7.1 and if it finds the criterion to be inappropriate brings a recommendation for change to the 2000 Annual General Meeting.

Motion Carried

Recommendation #3 To Council

It was MOVED by Peter Walker, seconded by John West that Council consider asking the appropriate committee to investigate the practice of staking pipelines for construction before the legal surveys posting of the same are performed, as this appears to be in contravention of the Pipeline Act which while not under our jurisdiction certainly affects our profession.

Motion Carried

Recommendation #4 To Council

It was MOVED by David Hagen, seconded by Peter Walker, that if by June 1, 1999, the implementation date of digital plan registration, no agreement has been reached between the ALSA and SDW/AltaLis for free access to the mapping data for Alberta Land Surveyors to use internally that Council consider instructing its solicitor to review its legal options

with regards to the land surveyors copyright over said digital data and take such action as needed to obtain such an agreement.

AMENDMENT MOVED by Ken Allred, seconded by Bob Haagsma, that "with regards to the land surveyors copyright over said digital data" be deleted.

Amendment Carried

Main Motion As Amended Carried

Recommendation #5 To Council

It was MOVED by Bill Hunter, seconded by Ken Allred, that Council consider selecting a special committee to make representation to the Legislative Assembly of Alberta with respect to the membership's concerns related to the proposed digital plan submissions, retrieval, use of this data by S.D.W. including the source and method of the funding of same.

Motion Carried

Recommendation #6 To Council

It was MOVED by Bill Hunter, seconded by Ken Allred, that Council consider appointing a committee to study and report on the reasons why 32% of our members did not demonstrate adequate competence in their chosen areas of practice. If this report confirms the foregoing, that Council take whatever action they deem necessary to rectify this issue.

Motion Defeated

Recommendation #7 To Council

It was MOVED by Mark Kocher, seconded by David Marquardt, that Council direct the appropriate committee to investigate the possibility of purchasing the complete file of digital plans for redistribution to the members.

Motion Carried

